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DOMESTIC ENGINEERING

MARCH
1934

Codes Approved

...mbing Fixtures ...ustry, Manufacturers;

...struction Industry, Contractors;

...t Iron Boiler and ...diator Industry, ...Manufacturers.

Page 29

...ating Heat and Air ...itioning Section—
Page 55

...s and Bar Equipment Section—
Page 139

Plumbing & Heating Contracting and Merchandising

No one knows Plumbing better than a Building Engineer . . .

January 3, 1934

Scovill Manufacturing Company
Plumbers' Brass Goods Division
Waterville, Connecticut

Sirs:

You can put me on record as saying that the 350 Scovill Flush Valves in this building have given us excellent service in every respect. Not a single one has been out of order since installation three years ago. No parts have been replaced. Only a few minor adjustments have been necessary, and they were made without shutting off the water or interrupting the service. As a matter of fact, I wish all the equipment in this building gave as little trouble as our Scovill valves.

Very truly yours,
(Signed)
Ralph W. Campbell
Chief Engineer.

A letter written by the engineer of the General Electric Building, New York City. (Plumbing Contractor, J. N. KNIGHT, New York City.)

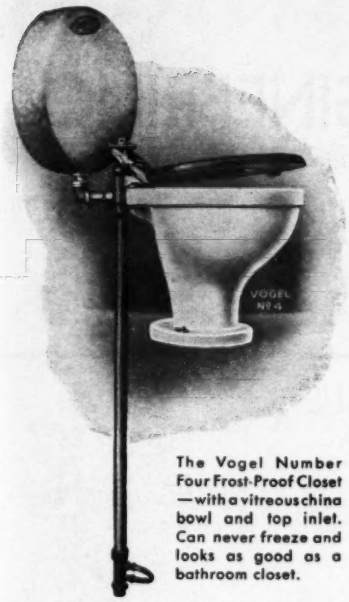
HE KNOWS how it wears and works from the *customer's* point of view. Which is a point of view you've got to consider whenever you do a job. It pays you to put in dependable, trouble-free Scovill equipment. Because: it protects your reputation with your customers; it builds up your reputation with your prospects. Remember, you're selling service when you sell flush valves or fittings.

Scovill's three-point plan for your plumbing profits includes: Dependable equipment (ask building engineers). Smart, new equipment (seen Foldspray and Vogue fittings?). Useful merchandising helps (sent free on request). Scovill sells only through regular wholesaler-to-plumber-to-consumer channels. Ask your jobber for further information. And write us for the complete Scovill catalog.

SCOVILL

SCOVILL MANUFACTURING COMPANY
PLUMBERS' BRASS GOODS DIVISION
Waterville • Connecticut
Scovill Flush Valves, Shower, Bath and Lavatory Fittings. Miscellaneous Plumbers' Brass Goods

SCOVILL

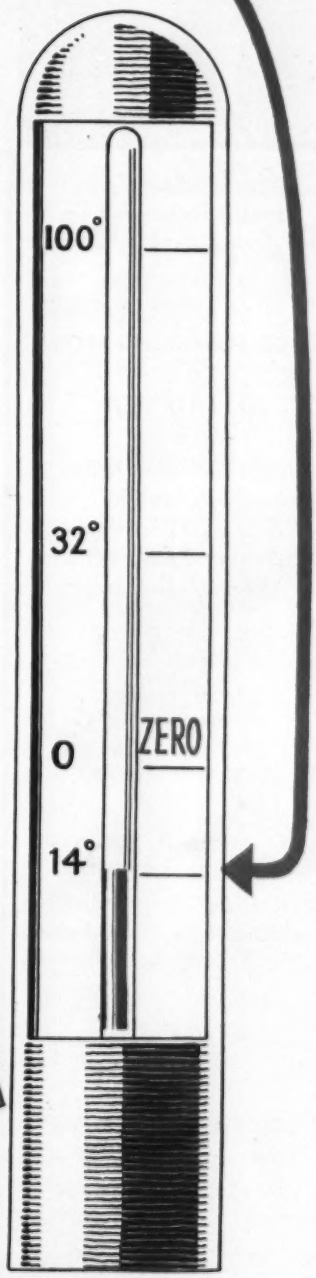


The Vogel Number Four Frost-Proof Closet —with a vitreous china bowl and top inlet. Can never freeze and looks as good as a bathroom closet.

*On February 9th the thermometer registered**

and still there is no report of a Vogel Frost-Proof Closet or Hydrant freezing . . .

★



We think this a record worth talking about. Particularly since 14 deg. below zero was the official reading here in Wilmington, which means that in exposed places where thousands of Vogel Frost-Proof Closets and Hydrants are installed, thermometers went as low as 20 deg. and 25 deg. below zero.

This proves again that you are taking no chances when you install Vogel outfits for your customers. They give absolute dependability which is combined with good looks, as a result of the new tank and bowl that are now standard equipment on the Vogel Line. Let us send you folders and blotters imprinted with your name and address. They will help you to sell. Tell us how many you can use.

—It was Cold!

All records for cold were broken in New England, with temperatures as low as -56°. In Boston it went to -18°; in Manhattan to -14°; in Philadelphia to -11°; Lynchburg, Va. -4°; Washington -6°; Richmond -8°; Atlantic City -8°; Buffalo -26°; Toledo -12°; Sault Ste. Marie -34°; Duluth -10°; Chicago -2°; Detroit -16°. Total death toll from cold, 40.

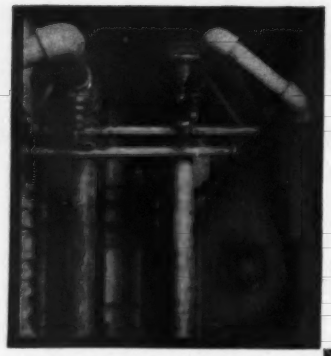
JOSEPH A. VOGEL COMPANY

WILMINGTON, DELAWARE ST. LOUIS, MO.

We can furnish the Vogel patented Number 4 Frost-Proof Outfit with syphon waste tube, auxiliary waste connection, and air brake flush, at a nominal additional cost when so ordered.

* *Official temperature at Wilmington, Delaware*

★ ★ VOGEL PATENTED *Frost-Proof Products* ★ ★ ★ ★



DOMESTIC ENGINEERING

Plumbing & Heating Contracting & Merchandising

Vol. 143. No. 3 Established 1889

Whole No. 1992 MARCH, 1934

Published Monthly by
Domestic Engineering Co.
1900 Prairie Avenue, Chicago

O. T. CARSON
President and Treasurer

E. DE FOREST WINSLOW
Vice President

D. J. HANSEN
Secretary

EDITORIAL STAFF
R. V. Sawhill,
Editor

R. Herlov, L. W. Britton,
Wm. W. Gothard,
Associate Editors

R. M. Starbuck, Jr.,
Consulting Editor on Plumbing

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BRANCH OFFICES
NEW YORK—
Rooms 1705-1706, 110 East 42nd St.

CLEVELAND, OHIO—
310 Citizens Building

TERMS OF SUBSCRIPTION
Anywhere in the World, $2.00 per year.
Current copies, 25c each
Back numbers, 50c each

Entered as Second Class Matter on September 26, 1932, at the Post Office at Chicago, Illinois, under the Act of March 3, 1879.

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Member of Audit Bureau of Circulation and Associated Business Papers

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Regardless of Business Conditions

K-3395—SPEAKMAN Anystream Self-Cleaning Shower Head. (Patented January 2, 1923, and November 3, 1931.)

...you always have customers who will buy QUALITY!

LET us all admit that the past three years have not been good in the Plumbing Industry, but still we have been selling plenty of Speakman Showers and Fixtures, which proves just what we said that there are always people who will buy quality.

Now Quality isn't just a word. In Speakman Showers and Fixtures it stands for fine, electrically melted brass, heavy castings and clean-cut threads, renewable seat valves, swivel disc, encased washers, and Chromium plate that never wears off. In addition, there's always plenty of escutcheon adjustment in Speakman Showers and Fixtures and they all have full size waterways.

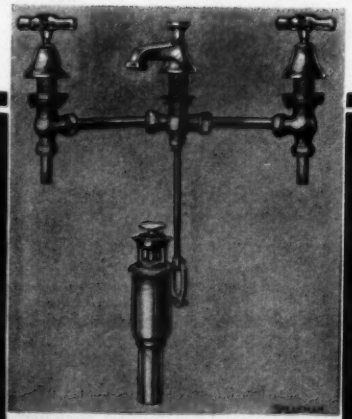
It has been said time and again in many different ways "If it's Speakman, it's quality." And it is this quality that gives every plumber pride in doing a first-class job and insures his customer satisfaction for years to come.

SPEAKMAN COMPANY
Wilmington Delaware

SPEAKMAN *Showers & Fixtures*

K-1001—SPEAKMAN Chromium Plated Si-Flo Closet Flush Valve with 1" capped angle stop for right or left inlet, wall flange, metal oscillating handle, flush connection, spud coupling nut and flange for 1½" top supply. (*Pat. Pend.*)

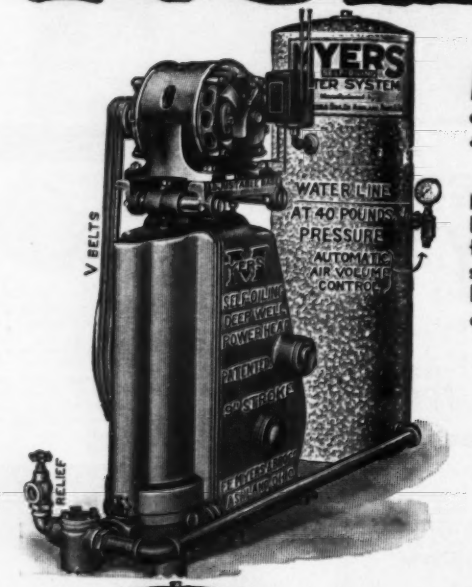
K-4039-M—SPEAKMAN Mixometer Shower and Tub Combination. ½ inch size. All metal handles and escutcheons. Has Speakman Anystream Self-Cleaning Shower Head and Act-Easy Pop-Up Waste. Valves connected by brass pipe and tested.



K-5010—SPEAKMAN Unit-Acto Lavatory Fixture.

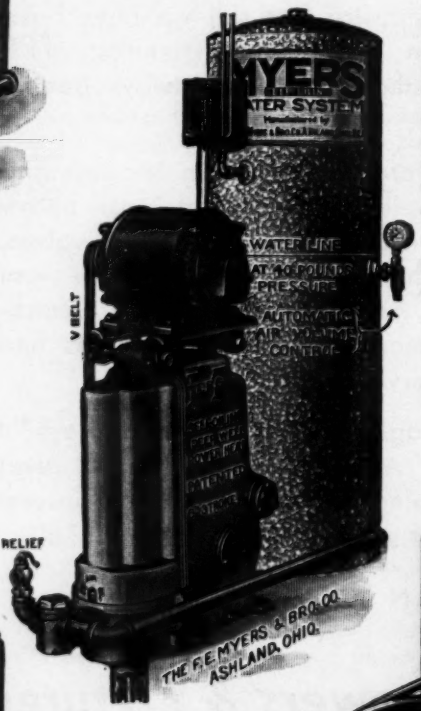
K-5503-M—SPEAKMAN Grace-Line Sink Fixture (Design Patented)

Reliability



MYERS reputation for quality and reliability is reflected in the long established Myers policy of giving more than ordinary values in pump and water system performance.

While prices on Myers Shallow Well Home Water Systems and Myers Electric House Pumps have been drastically reduced, and Myers Deep Well Water Systems are priced correspondingly low, Myers manufacturing standards remain the same. The same FINE QUALITY—the same POPULAR SIZES—the same CAPACITIES—the same PROVED PERFORMANCE—can still be sold and installed with the same confidence and at lowest prices in history.

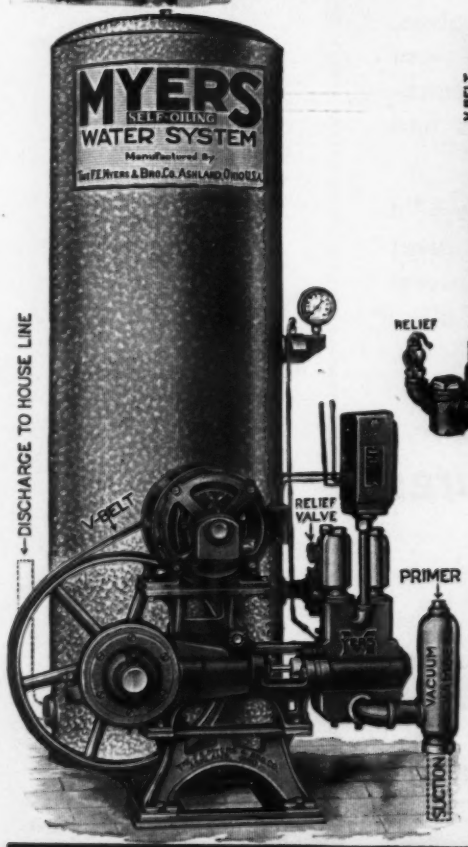


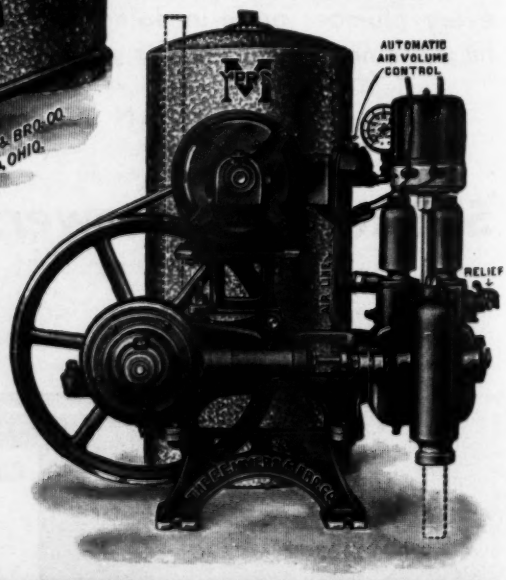
Because the Myers line is complete in style and size range—because Myers quality has been maintained—because Myers prices have been reduced—and because Myers Pumps and Water Systems are nationally advertised—Myers dealers the country over have unparalleled opportunities for sales and profits.

As a dealer you are interested. We solicit your inquiry and request for catalog.

THE F. E. MYERS & BRO. COMPANY

Ashland, Ohio





PUMPS—WATER SYSTEMS—HAY TOOLS—DOOR HANGERS

CHICAGO FAUCET NEWS

Issued Monthly by The Chicago Faucet Co., 2700-22 N. Crawford Ave., Chicago, Ill. Vol. 2, No. 5

EXTRA NEW WASTE HERE

FLEXROD

POP-UP LAVATORY WASTE DESTINED FOR SUCCESS

Should Receive Enthusiastic Reception by Plumbers

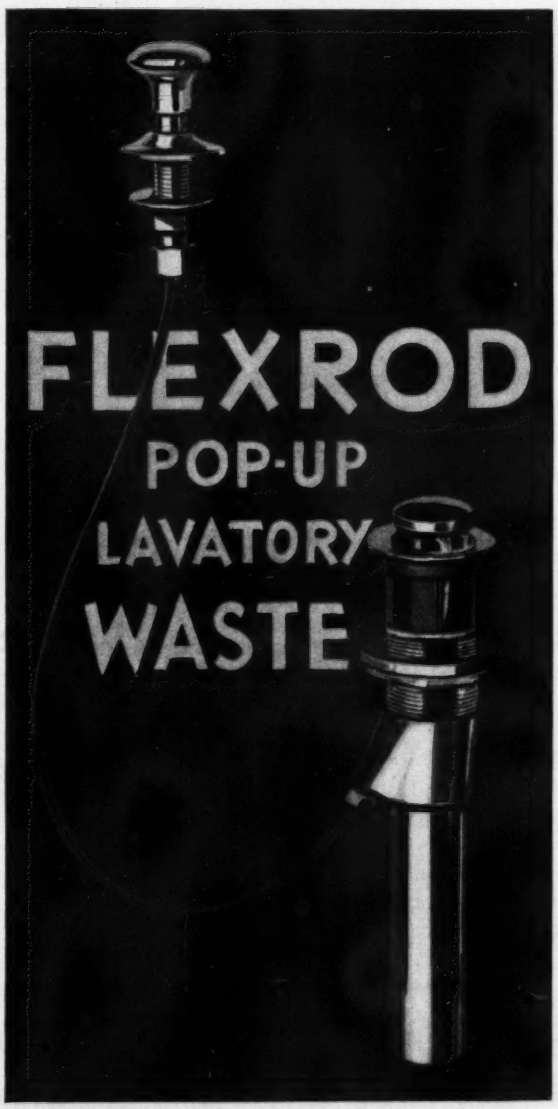
IMMEDIATE DELIVERY

Profits Ahead for Live Wires

The similarity in principle and general design of pop-up wastes heretofore on the market is emphatically interrupted by the advent of the new Flexrod Pop-up Waste here announced for the first time. This new lavatory waste embodies a principle of operation which is at once the most simple, most direct, and most positive which could be conceived. It will make an instant appeal to householders, building and hotel superintendents and industrial executives because of its obvious efficiency, trouble-proofness and sturdy, long-service construction. Its economical price will appeal to owners while still allowing for an attractive profit to the plumber.

SO SIMPLE, SO DIRECT

As will be seen in the illustration at the right, the Flexrod Pop-up Lavatory Waste employs a unique application of the flexible rod principle. A strong bronze wire, directly connecting the knob with the stopper, operates through a close-coiled bronze spring which serves as a housing and at the same time adds an element of elasticity which absorbs the action of the wire when either knob or stopper is arbitrarily held down. It is fool-proof and tamper-proof. Response to the hand is direct and instantaneous. There are no rigid rods, and, therefore, no joints, bolts, bearings, cams or levers to develop play or work loose and get out of order. There being nothing below the stopper but a vertical wire, free and rapid escape of water is assured whenever the waste is opened. Clogging is done away with. The knob is swiveled, so that it turns independently of the wire. The stopper is non-turning and is made of non-discoloring nickel silver, as is the plug. Nothing could be simpler, nothing more direct and positive, than the action of this new lavatory waste.



FITS IN WITH MODERN TREND

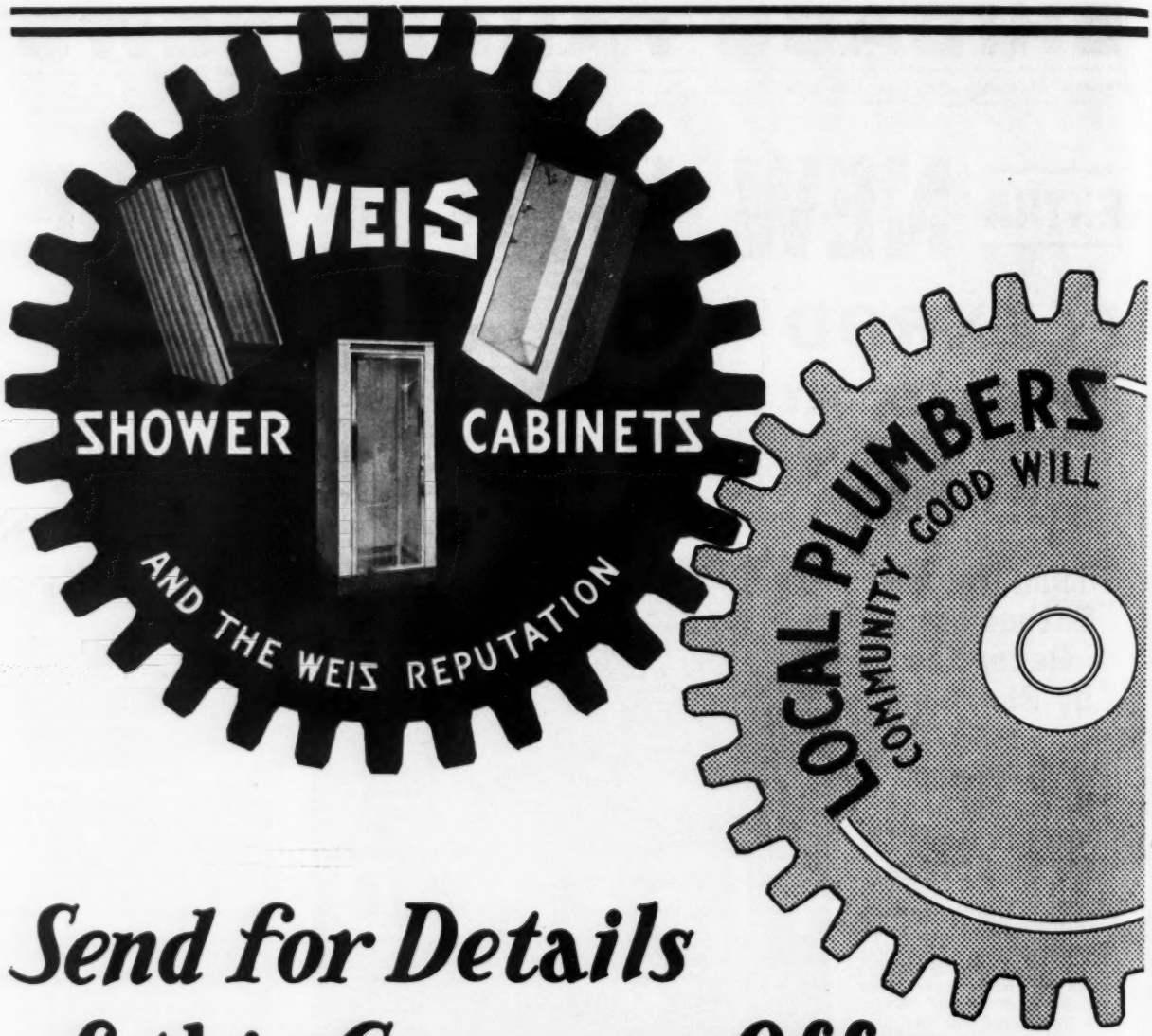
The Flexrod Pop-up Lavatory Waste is self adjusting to every dimensional variation of centers and to all standard types of lavatory basins. It is available in designs to correspond with the various models of Chicago Faucets and in both nickel and chrome finishes. In both design and operation, it is as modern as day after tomorrow. It fits in with the modern trend in bathroom interiors, both for new installations and for modernizing old facilities. Its wide mechanical adaptability makes it particularly desirable for the latter purpose. Complete instructions for its simple installation accompany each Flexrod waste.

PRESTIGE BUILDER

Emphatically, the Flexrod Pop-up Lavatory Waste is a quality product. In design, in construction and in finish it upholds the high standard long established by Chicago Faucets. That it is moderately priced, is a tribute to Chicago Faucet Company production facilities; yet the fact will reflect favorably upon the installing plumber. It will be a prestige building fitting, for it can be recommended in the strongest terms with every confidence that it will make good in service with long-time satisfaction. Be first in your neighborhood to offer the Flexrod Pop-up Lavatory Waste to your customers. Deliveries can be made in the near future.

ORDER NOW

If your jobber cannot supply you, write The Chicago Faucet Co., 2712 N. Crawford Ave., Chicago.



Send for Details of this Generous Offer

Shower cabinets are the key to a great many *extra* sales for the plumber, and are therefore doubly profitable. Sale of these cabinets can be increased by intensive effort and this company has developed a plan whereby the reputation and goodwill of the local plumber is tied to the reputation and quality of the producer to make the strongest possible appeal to the prospect

A series of attractive newspaper advertisements, all with original art work and carefully written copy, is available to run in your newspaper over your name. In accordance with the terms of our plan, the Henry Weis Mfg. Co. will bear the *entire cost* of the newspaper space in which these ads may appear. Naturally we cannot afford to make such a generous offer except to enterprising plumbers who, like ourselves, are ready and anxious to fight for more business.

If you are willing to join us in this sales-creative effort, send in the coupon or write us a letter giving that information. It costs you nothing and puts you under no obligation. We'll send you the details of our cooperative plan, then you can decide whether or not you want to go ahead with us.

Shower Cabinet Division of

HENRY WEIS MANUFACTURING CO., INC.

A Sales Plan Geared for POWER and PROFIT

302 Oak Street
ELKHART, INDIANA

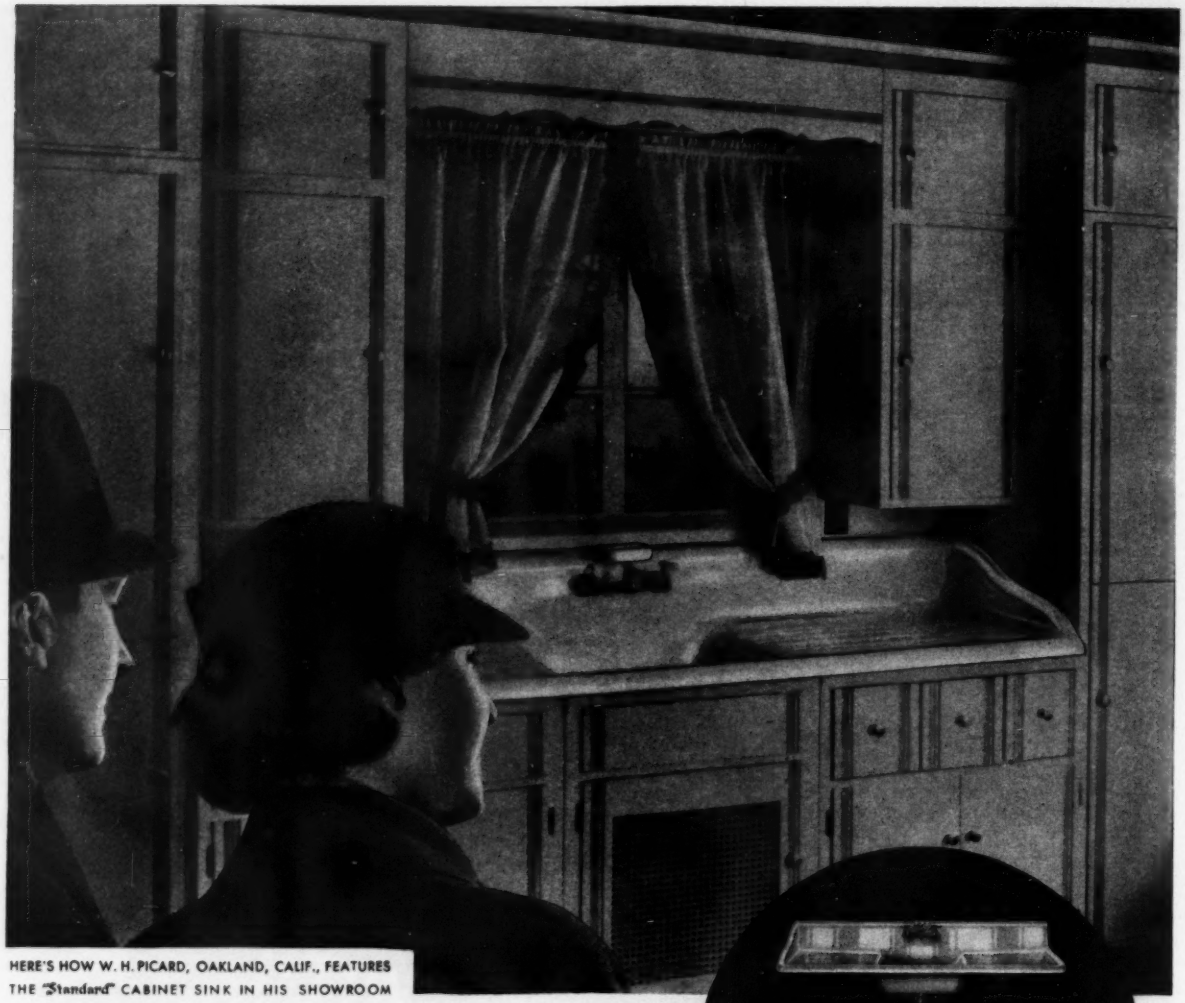
Henry Weis Mfg. Co., Inc.
302 Oak St., Elkhart, Ind.

Please send me details of your co-operative plan for selling Weis Shower Cabinets. I understand this request involves no cost or obligation to me. In 1933 I spent about $_____ for local newspaper advertising and about $_____ for other advertising.

Name _____

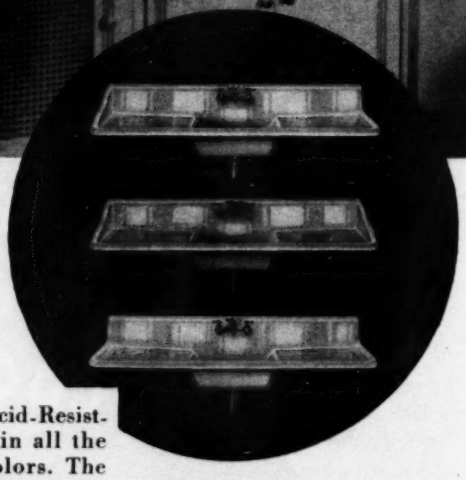
St. and No. _____

City--State _____



HERE'S HOW W. H. PICARD, OAKLAND, CALIF., FEATURES THE "Standard" CABINET SINK IN HIS SHOWROOM

USING MODERN KITCHEN DESIGN TO SELL "Standard" CABINET SINKS



TURN the trend of built-in kitchens into a source of real profit with "Standard" Cabinet-Type Sinks. No other type of sink can offer as many advantages as time-tested enameled cast-iron, and this is a market rightfully yours.

"Standard" Cabinet-Type Sinks embody all the features of the famous "Standard" Three 8's Sinks. They have 8" backs and are 8" deep. They are made in regular and Acid-Resisting Enamel, white and in all the attractive "Standard" colors. The range of sizes—60, 72 and 84 inches long—meet all requirements.

With "Standard" Cabinet-Type Sinks you now can meet every demand for kitchen fixtures. Use your catalogue to sell these sinks. Better still, show them in actual display.

TOP — NELSON, with left or right end, 72" size **$63.65**

CENTER — FENTON, Cabinet-Type Sink, 72" size **$65.25**

BOTTOM — NORTON, without ends, 72" size **$62.00**

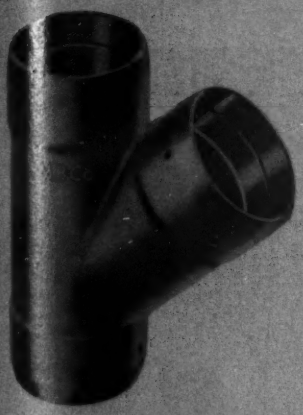
Prices shown are consumer costs—regular white enamel.
Prices subject to change without notice.

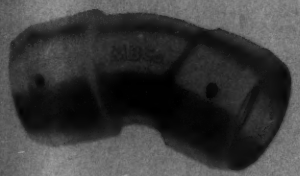
Prices for above sinks include K-9025Y chromard swinging spout faucet, K-878 chromard double strainer, K-960 chromard "P" trap, 1½" size.

Standard Sanitary Mfg. Co.

PITTSBURGH, PA.

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION





STREAMLINE

TRADE MARK REG. U. S. PAT. OFF.

DRAINAGE FITTINGS!

A complete line of STREAMLINE drainage fittings incorporating all the advantages of the well known STREAMLINE fittings are now available and ready for your use.

STREAMLINE drainage fittings make possible a pipe line of hard drawn copper with fittings having a smooth interior of the same bore as the pipe, permitting an unrestricted and extraordinarily smooth flow area. There is no roughness or protruding pipe ends to cause obstruction.

STREAMLINE Drainage Fittings May Be Connected in a Minimum of Working Space

Since no room is required for wrench hold or wrench swing such as is required to screw threaded fittings into place, the STREAMLINE fitting, which is very little larger than the pipe line, may be easily connected in any space large enough to accommodate the fitting itself. A line which is to be carried in hangers is very easily run because it can be properly pitched before soldering.

Since there are no hubs on STREAMLINE drainage fittings the piping can be concealed between studs and joists and still leave ample room for flooring, lath and plaster. When it becomes necessary to cut the joists, they are not weakened to such an extent with STREAMLINE fittings as with screwed fittings, which are heavily beaded and considerably larger in diameter. An entire drainage system for a bathroom may be assembled on a work bench, roughed in to place and connected to the fixtures. A STREAMLINE fitting eliminates unsightly and expensive furring, and saves valuable space.

High Salvage Value

STREAMLINE materials have a high salvage value. No matter how long they have been installed they may be disconnected merely by heating the joints with the blow torch; the entire system may be dismantled and pipe and fittings are immediately available for similar use. STREAMLINE copper pipe and drainage fittings are practical for all replacement work and can be installed with a minimum of damage to floors or walls.

WITH ALL THESE STRUCTURAL ADVANTAGES THE GREATEST VALUE OF A STREAMLINE INSTALLATION IS THAT ITS JOINTS ARE PERFECTLY BONDED AND ABSOLUTELY TIGHT, THAT IT CANNOT CLOG OR RUST AND WILL OUTLAST THE BUILDING IN WHICH IT IS INSTALLED.

STREAMLINE drainage fittings will meet all plumbing code requirements.

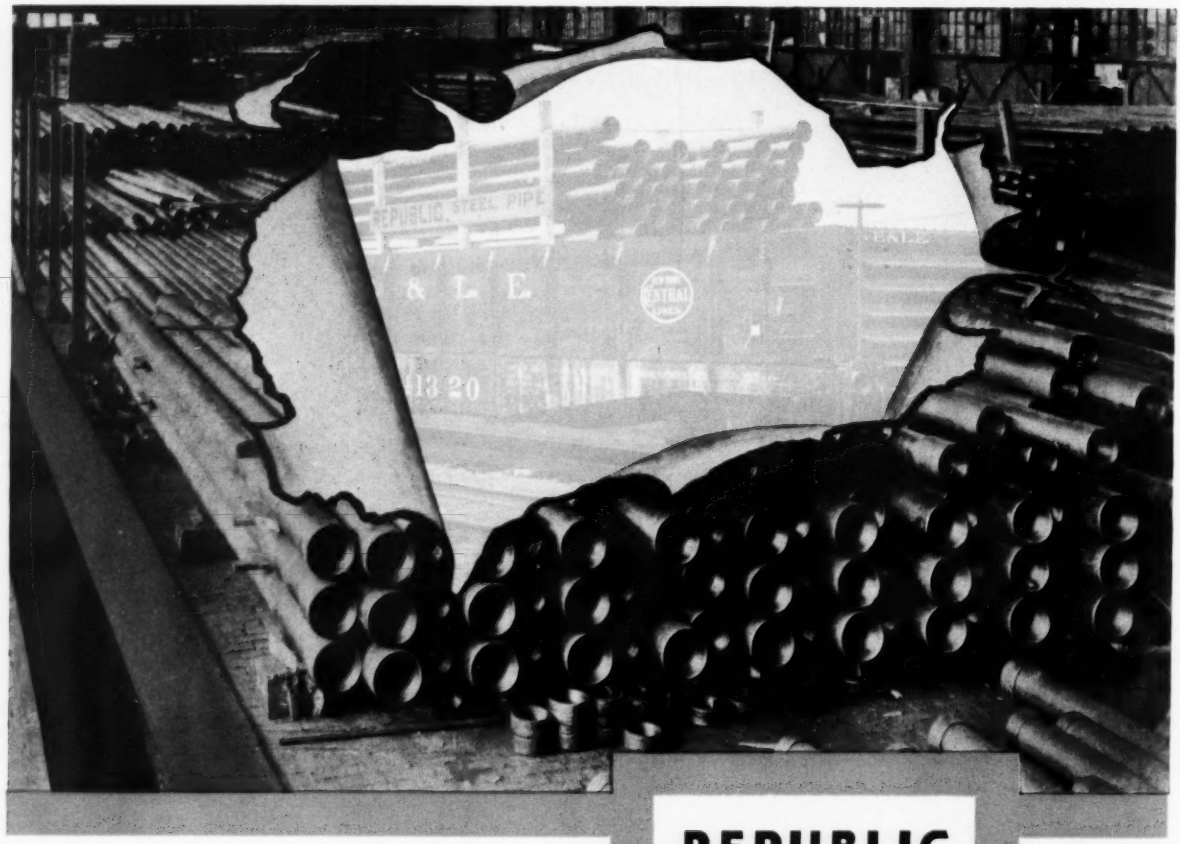
Send for our new catalog F, illustrating and describing STREAMLINE products and a complete range of STREAMLINE drainage fittings.

STREAMLINE
PIPE AND FITTINGS
PORT HURON, CO. MICHIGAN
DIVISION OF MUELLER BRASS CO.

NRA MEMBER U.S. WE DO OUR PART

Patent 1,770,832 Patent 1,770,382
Patent 1,880,998
Other Patents Pending

IT'S TIME TO FILL UP THE HOLES IN YOUR STOCK . . .



REPUBLIC STEEL PIPE

STOCKS of pipe held by industries and by supply houses have been badly depleted. Now that business activity is on the upgrade, it's time to take stock—to fill up the holes, and perhaps with an eye to future prices, to anticipate demands.

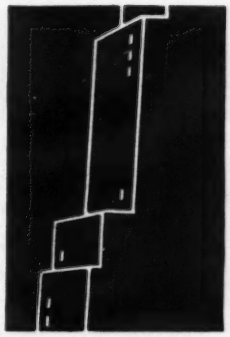
And when you know what is needed, specify Republic Steel Pipe if you want these qualities: long life because of the care used in refining the steel; ductility that makes bending, coiling, flanging and expanding easier; uniformity of structure that produces clean, sharp threads and saves effort and tear on tools; welding qualities that save time on welded jobs.

Whether you buy pipe for use, for fabrication or for resale to users, there's a lot of satisfaction in knowing that it is made by a manufacturer whose name on the pipe indicates a quality product and a reputation for fair dealing.

Your inquiries on steel pipe will be given prompt attention.

REPUBLIC STEEL CORPORATION

GENERAL OFFICES YOUNGSTOWN, OHIO



The classic lines of the modern building structure are in the rim, base and general design of Neuton and Neuclo washdown closets.

CRANE
announces
NEUTON *and* NEUCLO *washdown type* CLOSETS

■ NRA! AAA! CWA! PWA! and all the other initials come tumbling out of Washington, into the newspapers. But they're more than initials. They stand for over $10,000,000,000 real American money rolling into the highways and byways of American business.

Millions of men on payrolls! Millions of families feeling ready cash for the first time in months or years. Millions of wives thinking about brightening up millions of homes. And ever so many thoughts will turn to a new bathroom—at least new fixtures.

The new Crane Neuton and Neuclo washdown-type is a perfect answer to this new demand. A splendid quality Crane product, beautifully designed, and priced to suit the home of modest means.

CRANE

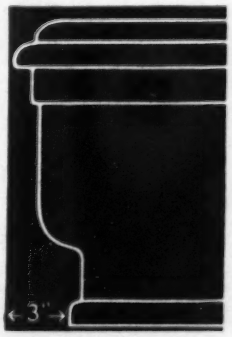
CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVENUE, CHICAGO, ILL. • NEW YORK: 23 W. 44TH STREET

Branches and Sales Offices in One Hundred and Sixty Cities

VALVES, FITTINGS, FABRICATED PIPE, PUMPS, HEATING AND PLUMBING MATERIAL

Neuton and Neuclo Washdown Closet Specifications

1. Only 14″ high, floor to top of rim, meeting low height recommendation of medical authorities.
2. 2½″ deep water seal maintained, preventing escape of sewer gas.
3. Large water surface, 9″ x 9″.
4. Supplied with 2″ spud for low tank, or 1½″ spud for flushing valve.
5. Neuton roughs in 14″ center of outlet to wall, with low tank. Neuclo roughs in 12″ center of outlet to wall.
6. Weight of bowl only 40 pounds.



Front of bowl does not protrude, eliminating usual hump in washdown closets. Base at front is 3″ behind rim, allowing ample foot-space.

UNIFLOW *Announces* STARTLING REDUCTIONS *and elimination of LIST PRICES*

THE JEWEL
Shallow Well System

A compact water system with 250 gallon per hour capacity. Patented oiling system delivers oil to all parts of the pumps centrifugally. Patented feature on water box increases suction lift. One nut access makes repairs easy. Sold to the dealer on new low net price..... **$35.06**

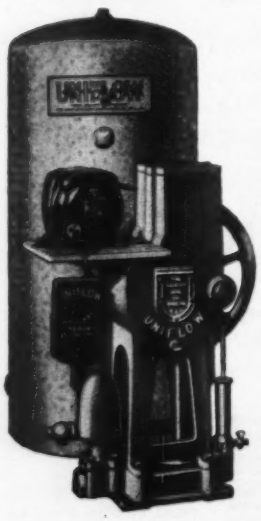
It is no longer necessary for the dealer to figure and puzzle over discounts on Water Systems. The UNIFLOW new price list quotes the dealer's cost exactly but best news of all the new net prices are the lowest in our history and we believe, quality considered, the lowest in the industry.

THE BLUE RIBBON LINE

Dealers who are seeking a competitive line—one with which they can meet every competitor are finding it in The Blue Ribbon Line of Water Systems and Water Softeners—rugged in construction but low in price. UNIFLOW also offers a premier line of water supply equipment priced on a new low net basis. We have genuine help to offer you in "going after" the business this year and would like to send you more complete information. Why not write today?

TO JOBBERS

Write or wire for our Special Jobbers Proposition

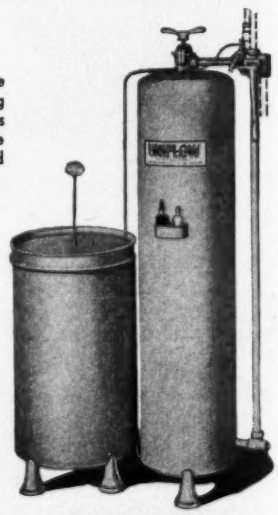


THE TROJAN
Deep Well System

The pump is equipped with double spiral cut gears and adjustable bronze bearings to take up wear in gears and prevent back lash. Splash system of oiling is used. All moving parts run in a bath of oil at all times. Old oil can be drained out and renewed just as in the crank case of your car. The ¼ horse power size delivers 200 gallons per hour at a 40 ft. depth and sells to the dealer on new low net price for..... **$70.13**

THE DART
Water Softener

A self Salting Water Softener made of heavy gauge copper bearing steel. Both mineral and brine tanks are hot dipped galvanized inside and out. The Synthetic mineral used has high capacity, long life and is quickly regenerated. It holds enough salt to last for months at one filling and is so simple to recondition that a ten year old child can easily do it. Rex Water Softeners (net price) as low as **$33.00**



UNIFLOW

UNIFLOW MANUFACTURING CO.
Dept. D Erie, Pa.

WATER SYSTEMS - WATER SOFTENERS
WATER FILTERS
ELECTRIC REFRIGERATORS

BEER
dispensing equipment

Ask for the UNIFLOW catalog of beer pumps and beverage coolers. Many satisfied users in the beer dispensing business.

NRA WE DO OUR PART

All prices quoted are net and F.O.B. Erie.

SEND FOR THE NEW NET PRICE LIST..

How one manufacturer sells heaters

Tanked with *Rustless* EVERDUR

Everything in the panel below is taken from the Product Information Bulletin published by CRANE CO.

Tanks of Crane Water Heaters are made for years of hard service. The Premier with *drawn* Everdur copper tank and the Superior with welded Everdur copper tank. Everdur copper tanks are tested at 350 lbs. hydrostatic pressure. Working pressure 149 lbs.

TABLE No. 2

Thickness of Metal in *Premier Drawn Everdur Copper Tanks*

Size	Capacity	Sides, Inches	Bottom, Inches	Top, Inches
No. 2	20 Gals.	.056	.1875	.156
No. 3	35 Gals.	.063	.25	.156
No. 4	54 Gals.	.070	.25	.156

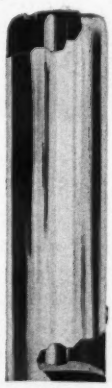
Thickness of Metal in *Superior Welded Everdur Copper Tanks*

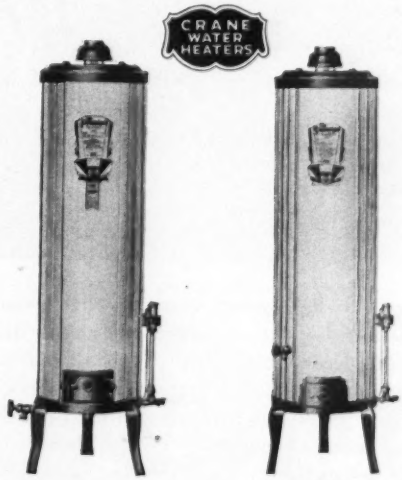
Size	Capacity	Side Sheets, Inches	Bottom, Inches	Top, Inches
No. 2	20 Gals.	.070	.1875	.156
No. 28	28 Gals.	.081	.25	.156
No. 3	36 Gals.	.093	.25	.156

● **Seamless Drawn Everdur Copper Tank of the Premier Heater**

This tank is drawn from a single plate of strengthened copper known as Everdur metal. There are no side or head seams. It contains no rivets. Tank bottom and center flue are welded with Everdur metal. One feature of this tank is its remarkable ability to withstand high pressures.

Premier tanks made from cold drawn Everdur copper have been given pulsating tests which are considered the most drastic in the industry. One of these tests is applied by means of a piston arrangement which varies the pressure from zero to 300 lbs. 53 times a minute. Premier tanks for the size No. 2 heater were held on this test for 36 hours continuously, causing a total of 114,480 distinct shocks, and tested to 700 lbs. hydrostatic pressure without any signs of failure or distortion.





The Premier
Made in three sizes

The Superior
Made in three sizes

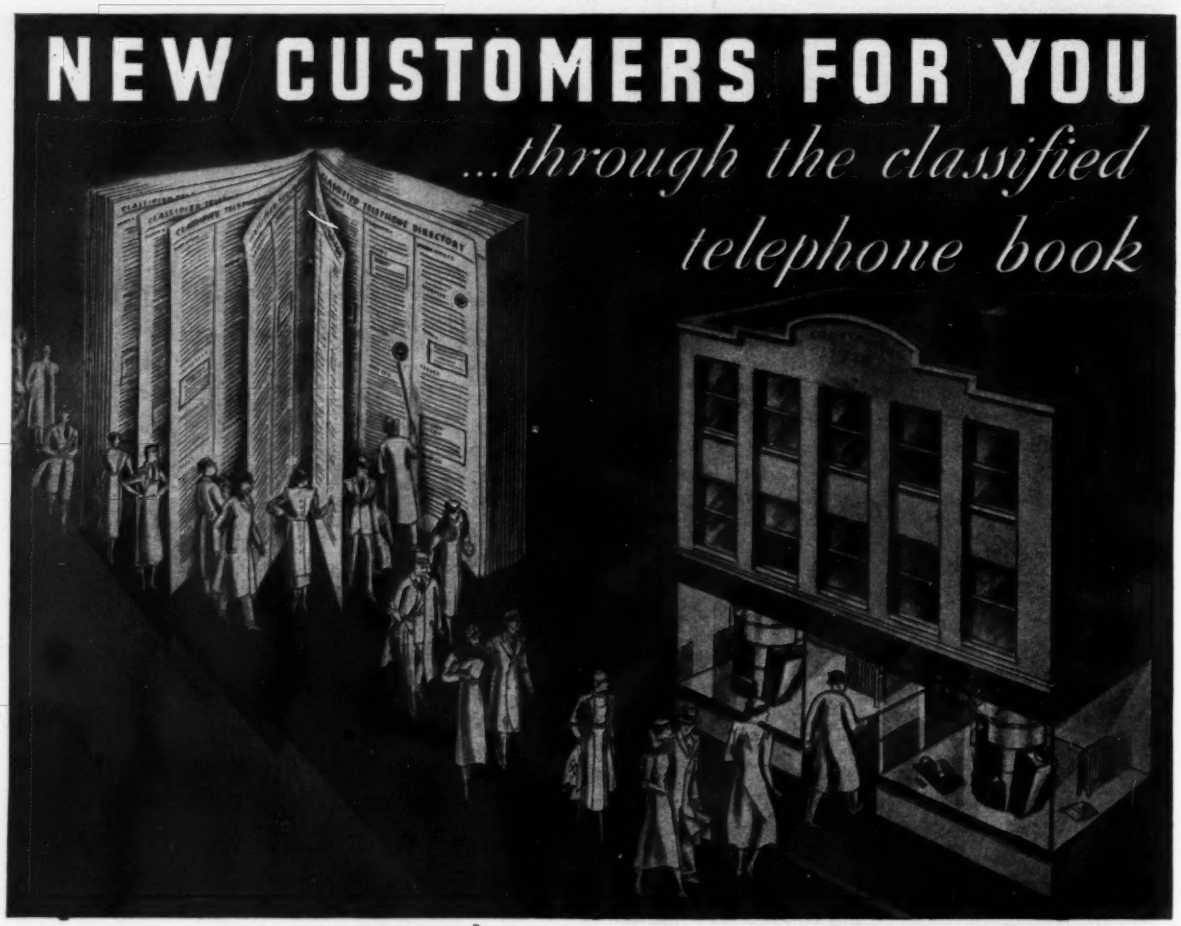
What more need we say . . . except that Everdur is nearly all copper, just enough silicon and manganese being alloyed with it to add the strength of steel and good weldability. And, perhaps, to remind you that 34 leading manufacturers of range boilers and automatic heaters now standardize on Everdur for *all* rust-proof models. For additional data, write to The American Brass Co., General Offices: Waterbury, Connecticut. Offices and Agencies in Principal Cities.

ANACONDA
from mine to consumer

NRA

EVERDUR METAL *for* TANKS

STRENGTHENED COPPER . . . A PATENTED ANACONDA ALLOY MADE BY THE AMERICAN BRASS COMPANY



Perhaps you have never realized what tremendous sales possibilities the classified telephone directory offers you. More than 85% of all telephone subscribers — a recent Bell System Survey reveals — use the "yellow pages" to help them with their buying.

This vast army of consumers use the classified to buy the many things they want. They use it to locate the authorized representatives for nationally advertised products and services.

Are you taking full advantage of this sales opportunity? In addition to your present representation in the classified, are you also listed under the Trade Mark Headings of the advertised brands you carry?

Trade Mark Service — also known as "Where to Buy It" — is valuable in that it definitely links you with the manufacturer's advertising. Prospects who want that brand simply look for the manufacturer's trade name in the classified telephone book and are directed to your store. This service costs you only a few cents a day, since most manufacturers will gladly provide the heading on request. Thus you pay only for your own name, address and telephone number.

See that you are adequately represented in the next edition of the classified directory. Just call your local telephone company and ask for the Directory Representative.

CLASSIFIED TELEPHONE DIRECTORY

Furnaces—(Cont'd)

HOLLAND FURNACES

Repairing and cleaning all makes of heating systems. Call an experienced Holland Heating Engineer to solve your heating problems. Telephone our local branch.

HOLLAND Vaporaire HEATING

"WHERE TO BUY IT"

BRANCH

HOLLAND FURNACE CO 214 Walton 5-3949

CLASSIFIED TELEPHONE DIRECTORY

Furnace Cleaners

HOLLAND FURNACE CO

Furnaces Cleaned, Repaired, Rebuilt and Installed

214 Walton 5-3949

Furnaces

● *TRADE MARK SERVICE ("Where to Buy It"). Manufacturer provides trade mark heading. Authorized dealers list their names below.* ● *INFORMATIONAL LISTING. A one-inch space in the listing column.*

STILL THE LOWEST PRICED -

GUARANTEED RED JACKET Shallow Well WATER SYSTEMS

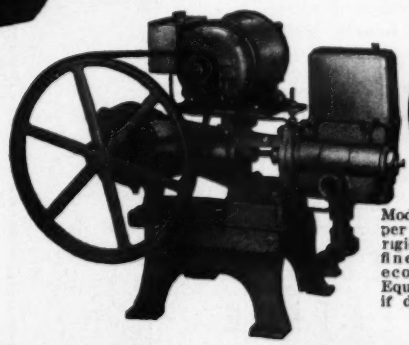
Yes, Red Jacket again offers the lowest priced Shallow Well Water Systems in the field. However, the quality of materials and fine workmanship have not been lowered on any Red Jacket unit, regardless of price. Satisfied users all over the country know that Red Jacket Water Systems give years of economical, trouble-free service. Red Jacket dealers have a quick turnover and fair profit.

Unchanged LIBERAL DEALER DISCOUNTS

The Red Jacket Mfg. Co. always has, and still believes, that the dealer is entitled to a liberal discount. Our discounts are no less than they were in 1933. We maintain our discount schedule in spite of the fact that material and labor costs have been increased. This liberal dealer discount will enable you to sell the lowest priced shallow well water systems in the field *at the largest profit.* Only Red Jacket offers so much to dealers. Act today—write for full details.

$45.75

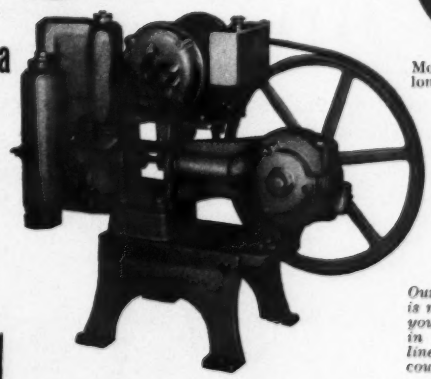
Model 1150. 250-gallons per hour. Water lubricated, compact, quiet, well balanced. Will give economical, trouble-free service. A leader in its field. Equipped with gas engine, if desired.



$52.50

Model 1153-C. 350-gallons per hour. A new model, rigidly constructed of the finest materials. Quiet, economical operation. Equipped with gas engine, if desired.

$79.50



Model 1155-C. 500-gallons per hour. A compact, sturdy unit. Made of finest materials. Well balanced. Will give dependable service for heavy requirements. Equipped with gas engine, if desired.

Also complete line of hand, windmill and three-way pumps.

RED JACKET MFG. COMPANY, Davenport, Iowa

(Mfgrs. of Pumps and water systems for 58 years.)

DORWARD-Red Jacket

WATER SYSTEMS AND DEEP WELL POWER HEADS

Our new 1934 catalogue is now ready. Write for your copy today! Cash in on this fast selling line with big dealer discounts.

The 1934 CATALOG is out.....

Have you received yours?

YOU need this new 1934 edition of the PLUMBING AND HEATING CATALOG Today . . . and every other day, for that matter . . . You have no way of knowing what mail or what 'phone call will bring an inquiry for something that you haven't handy in stock . . . or that you are not familiar with . . . and it would certainly be an unfortunate break if you were unable to give a customer complete accurate information on some special job. Your buying information is complete only when the PLUMBING AND HEATING CATALOG is immediately accessible on your desk.

In the new 1934 edition is listed more than 1,300 items used by plumbing and heating men. Under each item you will find the trade names and the names of the manufacturers. Many of these items are shown in the Catalog Section and when they are, a page reference is given. The entire section is classified and numerous cross references are given so that any item you are looking for can be located immediately without delay.

Included also is a list of all manufacturers, over 4,000, who make items used in the plumbing and heating industry, together with street addresses.

A Catalog Section, which is a collection of the catalogs of hundreds of manufacturers, makes your buying problem an easy one. Here you are able to locate the sources of materials. Here in one big consolidated catalog, indexed and cross-indexed, you will find illustrated nearly every item you will ever have call for.

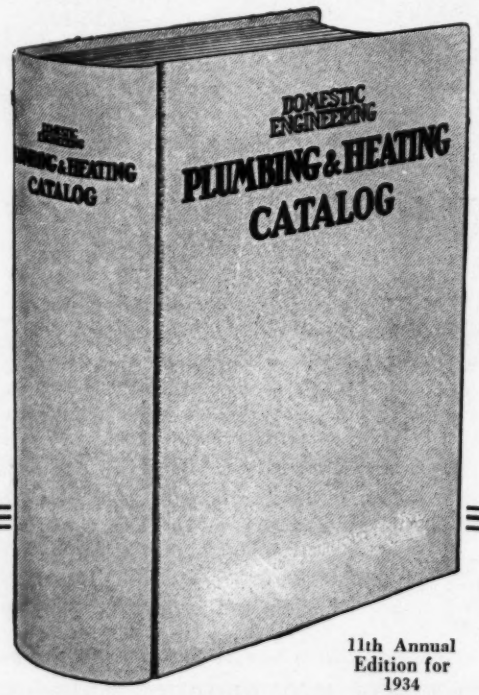
Buying information pertaining to beer dispensing equipment, installed and serviced by the plumbing and heating industry.

The Engineering Section contains over 100 tables, rules, charts and diagrams commonly used by plumbing and heating men.

Where else can you find, under one cover, such a wealth of material that can be used by you in your every day buying? For those who need to keep in touch with buying information, the PLUMBING AND HEATING CATALOG is indispensable. Often it is the only source of reliable accessible data on manufacturers, whose products you will have to buy during the year.

For the past ten years, DOMESTIC ENGINEERING PLUMBING AND HEATING CATALOG has been a standout in the plumbing and heating industry, being the only book of its kind in this field.

Send for your copy today. Use the coupon below. Its price is $7.50.



11th Annual Edition for 1934

DOMESTIC ENGINEERING PLUMBING & HEATING CATALOG

DOMESTIC ENGINEERING PLUMBING AND HEATING CATALOG,
1900 Prairie Avenue, Chicago, Illinois.

We hereby authorize you to enter our order for one copy of the 1934 edition of Domestic Engineering Plumbing and Heating Catalog for which we agree to pay you $7.50 upon receipt of the Catalog.

Firm ..... Mark book for Mr. .....

Street Address ..... City and State .....

Signed by .....

MONEL METAL HOT WATER TANKS

Watch your Customers' Eyes

LIGHT UP...

when they See This Tank

IT'S JUST WHAT THEY'RE LOOKING FOR... *AND WE'RE HELPING THEM TO FIND IT!*

When your customer sees this shining "Whitehead" Hot Water Tank ...when he sees it is made of Monel Metal...just watch his eyes light up with the desire to own it.

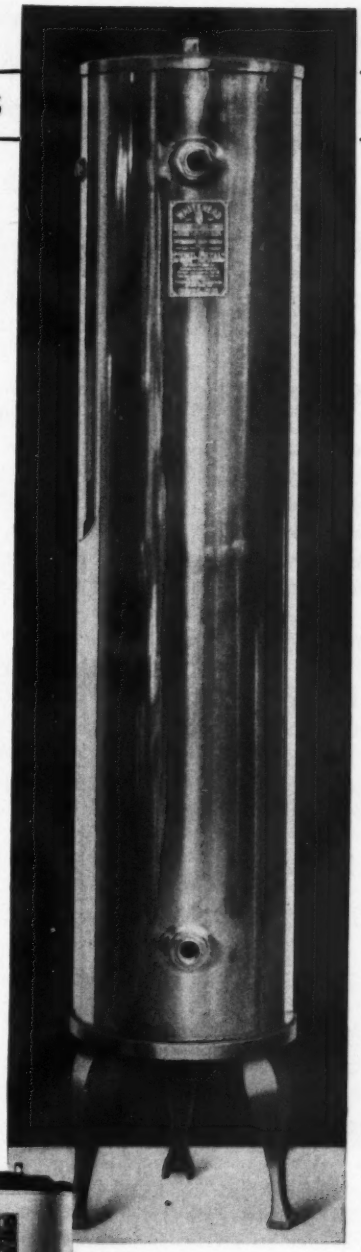
For he *knows* about Monel Metal and he's *sold* on it. Powerful advertising in the great million-reader national magazines has made Americans aware of Monel Metal's steel-like strength, absolute immunity to rust and resistance to corrosion.

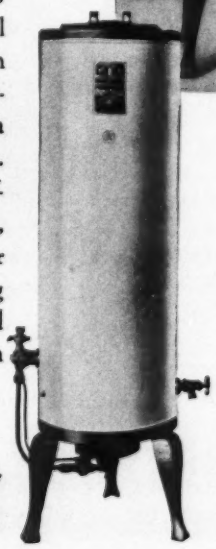
So when you tell your customer that the "Whitehead" Monel Metal Hot Water Tank is available, tested for pressure up to 400 lbs., which gives it a safety factor 50% to 100% greater than any other hot water tank...when you tell your customer these things, he knows you are giving him *facts* and not mere *sales-talk.*

More Profit
From Less Sales Effort

And when finally you point out that every "Whitehead" Monel Metal Hot Water Tank carries a 20-year guarantee, you'll clinch many a sale with less trouble and less sales-effort than it takes to sell a low-priced, low-profit tank.

Because they are self-sellers and profit producers, Monel Metal Hot Water Tanks are worth displaying and pushing. Let us send you complete information and prices.





● *The "Whitehead" Monel Metal Hot Water Tank (Range Boiler). Mfd. in test pressures of 200, 250 and 400 lbs.*

● *The "Whitehead" Automatic Storage Gas Water Heater. Made in three types —slow recovery or constant demand, underfired and sidearm—all with Monel Metal tanks, safety pilots, snap-action thermostats, non-backfire burners and heavy insulation. All parts exposed to water made of rust-proof materials. Heater and all safety devices approved by the American Gas Association.*

● *Kicks, complaints and angry customers are all that a plumber gets when he sells tanks that rust out.*

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York, N. Y.

Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

BETWEEN OURSELVES

Thanks: Domestic Engineering is a wonderful paper, and the most up - to - the-minute business paper.
G. S.,
British Columbia.

A Historical Month

FEBRUARY, 1934, takes on personal significance to everyone in the plumbing industry as the date of coming under code control.

Our First Codes

THE big master plumber and heating contractor groups are not fitted out with codes, it is true, except as they come under the provisions of the construction industry code. Nor are the wholesalers operating under a code of their own. But the manufacturers' code has been signed by General Johnson and its rules affect every wholesaler and contractor.

Starting the Job

IT is, in one sense, the beginning rather than the end of the code effort. The job of securing the agreement of so many divergent interests was a big one. But it is easy to appreciate that the job of getting all of these many interests to employ faithfully these new business rules is a much bigger task.

Codes Are Law

ON the surface, there is no reason why the manufacturers' code should not receive a fair and sincere trial. And it has behind it, a force which has been absent in earlier efforts to establish rules for fair trade practice. That force is the federal government as under the National Industrial Recovery Act, these signed codes have all the force of law.

The Way to Build

BUT an even greater reason to look for willing compliance, is through the avenue of self-interest. Most business men have asked for years to be allowed to run their business in a way which the anti-trust laws denied. These codes are the answer to that petition. In addition, the manufacturers' committee was made up of men who employed widely different channels of distribution. With every element represented, it would seem logical that the finished code represented the way in which the great majority of manufacturers believe the future success and prosperity of their businesses can be built.

The Preferred Outlet

AND when you read this code, you will be surprised at the definiteness of its provisions. Eight months of intensive analysis of their business is reflected in the rules set by the manufacturers for their own guidance. It is a reason for careful study by everyone in the industry, that the results of that eight months of study put the established plumbing and heating dealer in the foreground as the sales outlet for the products of the industry.

Helps Sub-Contractors

THE construction industry code is tremendously important. The relationships between general and sub-contractors have always left much to be desired. The phrase "chiseling" which has attained national prominence was first heard in connection with the contracting branches. The rules set up for the making of bids, for the use of sub-contractors' original bids, for stopping the harmful practice of bid peddling, all of these and others are an attempt to remove from the contracting branches the worst of the many evils which penalized the better contractor.

Help for the Reader

WHILE codes naturally dominate this issue as the greatest February development in our industry, we have been able to assemble a variety of practical and helpful material designed to help you in your technical and merchandising problems.

What Readers Want

IN the big AUTOMATIC HEAT and AIR CONDITIONING section, the reader has at his disposal a complete section of practical information. A new house—called The House of Tomorrow—arouses everyone by its evidence of what improved domestic mechanical services can do; attic ventilation as a means of providing greater home comfort; the on-the-job factors you meet when putting oil burners under gas boilers; the features of various types of boilers which must be understood when fitting up a heating plant for any home no matter what type fuel is used; how a stoker sale was made to a customer who wanted certain results; news of this growing industry—all of those reflect our contacts with the readers and their suggestions as to the subjects on which they want information.

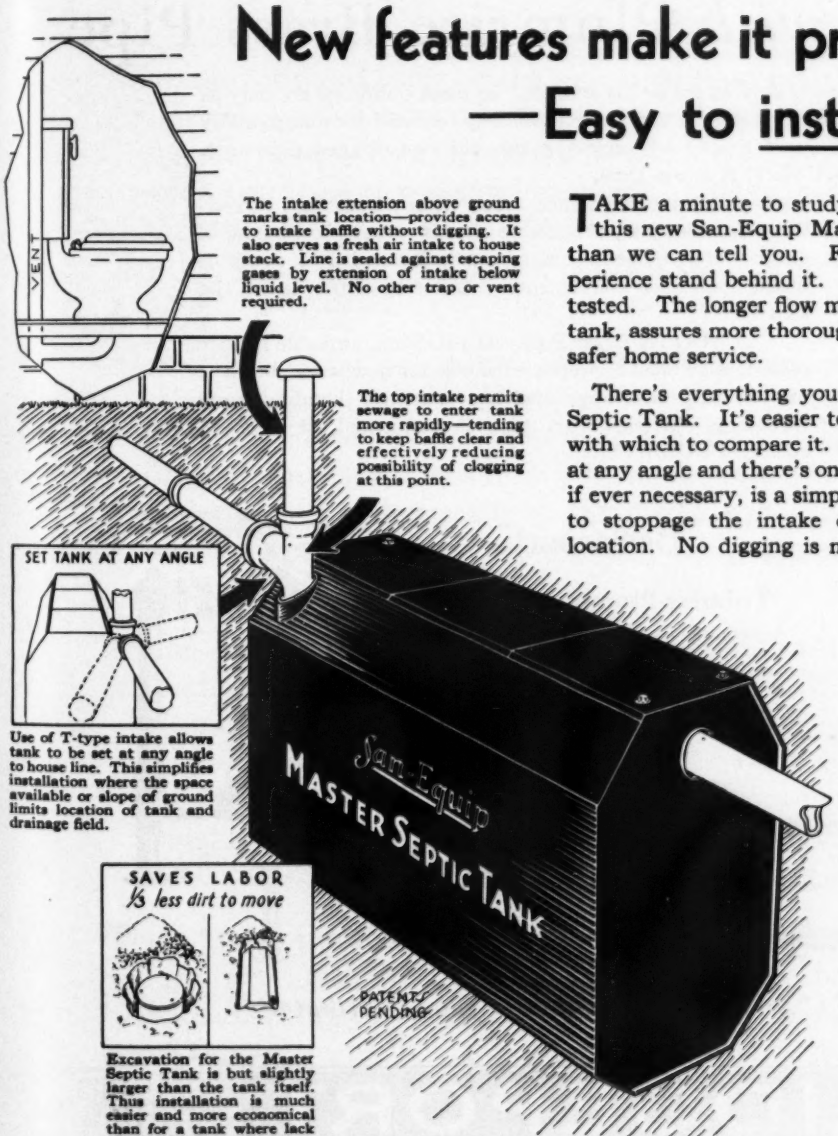
Busy Days Ahead

WITH general business showing so much improvement and with the products of our big industry so well adapted to meet those needs which home owners and store keepers are anxious to satisfy, the prospect ahead of our readers is brightening.

Your Editor

A NEW TYPE OF SEPTIC TANK

New features make it profitable to sell —Easy to install and service



The intake extension above ground marks tank location—provides access to intake baffle without digging. It also serves as fresh air intake to house stack. Line is sealed against escaping gases by extension of intake below liquid level. No other trap or vent required.

The top intake permits sewage to enter tank more rapidly—tending to keep baffle clear and effectively reducing possibility of clogging at this point.

SET TANK AT ANY ANGLE

Use of T-type intake allows tank to be set at any angle to house line. This simplifies installation where the space available or slope of ground limits location of tank and drainage field.

SAVES LABOR
⅓ less dirt to move

Excavation for the Master Septic Tank is but slightly larger than the tank itself. Thus installation is much easier and more economical than for a tank where lack of shovel room makes extra digging necessary.

TAKE a minute to study the illustration. You'll see what this new San-Equip Master Tank has to offer even better than we can tell you. Fifteen years of manufacturing experience stand behind it. Every feature has been thoroughly tested. The longer flow made possible by the horizontal-type tank, assures more thorough treatment of sewage—provides a safer home service.

There's everything you could ask for in this new Master Septic Tank. It's easier to sell because there is no other tank with which to compare it. It's easier to install—you can set it at any angle and there's one third less dirt to move. Servicing, if ever necessary, is a simple matter. If careless use does lead to stoppage the intake extension always marks the tank location. No digging is necessary to clear the intake baffle.

Brings Back Profits!

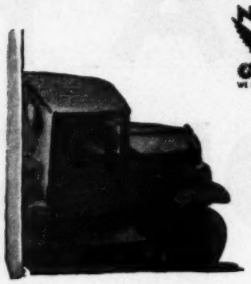
Selling septic tanks hasn't been easy during the last few years—we know that. "Price" has overshadowed everything else. This tank puts a stop to chiseling competition—lets you make and keep the profit you justly deserve. And it's being sold as all San-Equip tanks have been sold for fifteen years—*through the plumbing trade exclusively.*

Ask your jobber to show you this tank. Write us if you want further information. You can begin right now to share the profits this new San-Equip Master Septic Tank will bring to every plumbing contractor.

SAN-EQUIP INC.
713 E. Brighton Ave., Syracuse, N. Y.

San-Equip MASTER SEPTIC TANK

A Profitable
NEW DEAL
for
Old Buildings—

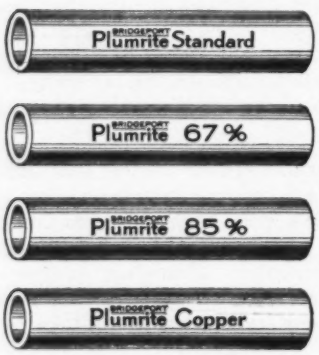


Modernized with Plumrite Brass Pipe

Just as a "man is only as old as his arteries," so most buildings are only as old as their plumbing . . . which can be economically renewed for many, many profitable future years simply by replacing the old rust-clogged pipe with non-corrosive PLUMRITE Brass Pipe.

A primary convenience today in any building . . . residential, industrial, mercantile . . . is unobstructed flow of clean water. The value of, and demand for, space is based upon such conveniences, rather than the age of the structure.

PLUMRITE Brass Pipe, with its long, enviable service record, is as ideal for replacement as for new work, because of its easy working qualities—cutting, bending, and threading. Where brass pipe is concerned, it pays to specify PLUMRITE.



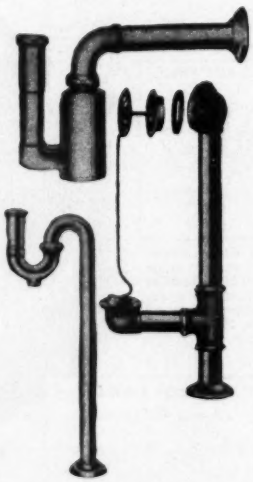
Four Plumrite Mixtures

There's a PLUMRITE mixture for every purpose and water condition . . . each assuring utmost dependability and freedom from maintenance, which results from using materials made to fit the job. Write for PLUMRITE booklet.

"Bridgeport"

Tubular Plumbing Supplies

A complete line to meet every requirement—contains many new distinctive features on practically every item—made with experienced care which has won for "Bridgeport" its popular favor with architects, owners, plumbers. New illustrated catalog on request.



Copper Water Tubing

Pure copper (99.96%), flexible—readily bent around obstructions. Also furnished hard in straight lengths. Recommended for underground service lines, inside replacement, and new work. Write for descriptive booklet.

Specify "Bridgeport" products at your Distributor's

BRIDGEPORT
BRASS COMPANY

• BRIDGEPORT, CONNECTICUT •

AKRON BOSTON CHICAGO CINCINNATI CLEVELAND DAYTON DETROIT HOUSTON LOS ANGELES NEWARK NEW YORK CITY PHILADELPHIA PROVIDENCE ST. LOUIS SAN FRANCISCO

OUR INDUSTRY

March, 1934

Under Code Control

Manufacturers of some of the principal plumbing items are now starting the experience of operating under a code. The dates when plumbing and heating contractors and wholesalers likewise will come under code control are measurably closer. The cast iron boiler and radiator manufacturers have a code and many manufacturers in smaller groups are bound by newly signed codes to try out the principles of the "new deal."

Our industry, for one reason and another, has lagged behind many other major lines in securing approval of its codes. The problem was complicated by the many sided nature of the business, the variety of operating and distributing methods pursued by manufacturers and it is still complicated by the mixed conditions in the wholesaling and retailing branches brought on by the springing up of different types of sales outlets.

In the following pages, you will find two highly important codes reproduced in full for your use and guidance in carrying on your business. One is the new code of the manufacturers of enameled ware, of sanitary brass, of vitreous china and of toilet seats. It is anticipated that other groups likewise will adopt this code. The other is the code of the construction industry, affecting general and sub-contractors in all branches of the building field.

These codes introduce a factor into your business which has never been previously met. The provisions have the force of law so that fair methods of competition instead of being a kind of gentlemen's agreement have the stern figure of Uncle Sam in the background. While the codes naturally represent a compromise between many viewpoints, they can be accepted as fairly indicative of what the majority thinks is the way to build up a more profitable business.

Most business men have asked for years to be allowed to do what these codes now compel them to do. You will find these codes an increasing element in the conduct of your business. They deserve a fair trial.

Housing Demand Calls for Federal Aid in Financing

NEWS releases from Washington under date of January 16, were to the effect that Controller-General John R. McCarl was holding up more than half a billion dollars intended for Federal housing, relief, farm loans and other activities, through his questioning the constitutionality of all the new deal spending corporations.

Since then, Administrator Ickes has signed a contract to loan $1,039,000 to Juniata Park Housing Corporation of Philadelphia, for the construction of a low cost housing project. More recently, Mr. Ickes has appointed Col. H. B. Hackett who is a Chicago engineer, as general manager of the Public Works Emergency Housing Corporation. Developments indicate that ways have been found to avoid the obstacle raised by Controller-General McCarl.

UPSWING IN CIRCULATION

The importance of this to the building industry if not self-evident is apparent from statements of the secretary of the Illinois Housing Commission, Mr. Coleman Woodbury, in his recent talk before the Western Society of Engineers. He points out that Federal funds are the pivot of every local housing program for the reason that the conditions of the depression have made private capital for investment very scarce and that private capital was squandered recklessly in real estate developments during the twenties, with the result that such developments have poor standing among the relatively few who have funds to invest.

In recent months there has been a definite upswing in construction. During December of 1933, a strikingly larger volume of both private and public construction than in any month since October, 1931, was carried on according to a recent announcement of the Public Works Administration, based on a survey by the F. W. Dodge Corporation. In 37 states east of the Rockies, the corporation reports, contracts awarded during December for building and engineering projects amounted to $207,209,500. This amounted to a 28 per cent increase over November, 1933, and a 155 per cent increase over December, 1932. Publicly financed contracts during the last six months of 1933 increased 21 per cent over the second half of 1932 while the first six months of 1933 ran 52 per cent behind the corresponding months of 1932.

That there is a need for housing, there can be no question. In order to learn just what these requirements are, various surveys have been in progress, one of which has been conducted by the Civil Works Administration. This survey has involved the use of ten thousand men and women in securing data and has covered a selected list of 63 cities with a population in excess of 10,000,000. The data thus collected are now being assembled since the actual gathering was scheduled to be completed by February 15. Another investigation.

The semi-annual survey of the real estate market made by the National Association of Real Estate Boards, which was released a few days ago, covers the findings in 273 cities. This survey shows that there is an appreciable percentage of cities in the United States in which there is an apparent shortage of single family dwellings. The report shows that this was not true six months ago.

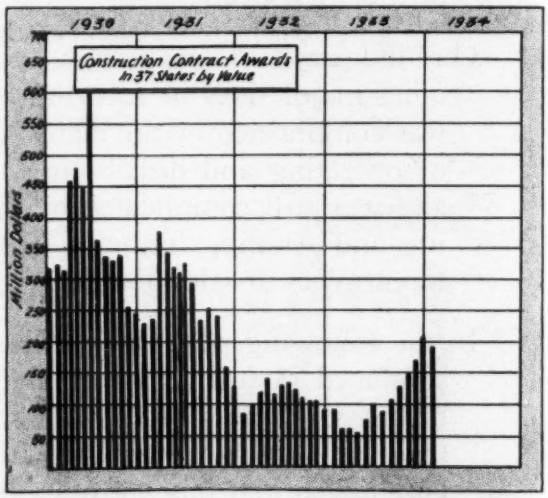


Fig. 1—Chart shows positive upturn in building construction, based on F. W. Dodge Corporation statistics

During the early part of this month witnesses from all parts of the country assembled in Washington before the Federal Home Loan Bank Board to testify that thousands of people who want homes are waiting to build them. These witnesses also reported a low and receding vacancy in single homes and many stated that the vacant homes are not habitable.

A partial survey made by the home builders association, of 84 cities in which survey only 13 cities and seven states were completely covered shows $283,095,135 wanted to finance the construction of 16,886 homes for which $20,499,604 is ready for initial payments alone.

An analysis of the income of these 16,886 employed families shows 93 occupations, with an average income of $2,858.00. The average amount ready to go into the construction of these homes is $1,214.

Remodeling Project Analyzed to Show Profit and Higher Rents

Fig. 1—The building in question is shown above. Note the "For Rent" sign

This is an actual, and typical case proving remodeling pays. The figures given here are being used at this time to promote this job. Use this as a guide for promoting your plumbing and heating work

By Thomas R. Shaver

SOME few years ago, certain authorities on housing and men whose business welfare depended on housing construction, gave their estimates of the amount of new annual construction, in Chicago, varying between 10,000 and 20,000 units. These figures included both apartments and single family homes, and the figures were based on the replacement of properties destroyed by fire or other causes, normal depreciation of properties below the then livable standard, and new facilities to provide for population growth.

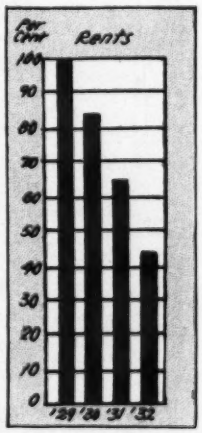


Fig. 2—Project will pay even with today's low rents. U. S. Dept. of Commerce chart

By the end of 1928, housing construction in Chicago had almost ceased, and has remained a rare activity since that time. Still, considerable vacancy has existed, and still exists, this being due, from the writer's first hand observation, in considerable areas of the city, to two major causes. The first is the astonishing amount of doubling up, two families, and frequently three, who have always lived in comfortable apartments or houses renting in the past at $100.00 a month or a little less, living together in homes of the same class. The second cause is the great number of people now living in cramped quarters in wretched old buildings which no civilized person would class as fit for human habitation.

It is certain that as general employment conditions improve, the doubled-up families will find their living conditions, formerly pleasant enough and probably accepted with gratitude that they were not worse, intolerable when there is more money to spend. The occupied hovels will continue the nearly completed process of decay. And when this general improvement in employment gets well under way, a shortage of moderate cost homes is a certainty.

From the reports and statistics that I have seen, it appears that Chicago probably had a greater surplus of home units in 1928 and 1929 than was the case in the average city in the country, and consequently, there should be more surplus today to take up an increased demand, than is generally found throughout the country. Nevertheless there is ample indication of brisk demand for homes in many sections of Chicago. Tenants in some sections are asking how much rent is to be increased this spring, and know that it will be increased somewhat. One organization managing hundreds of buildings has

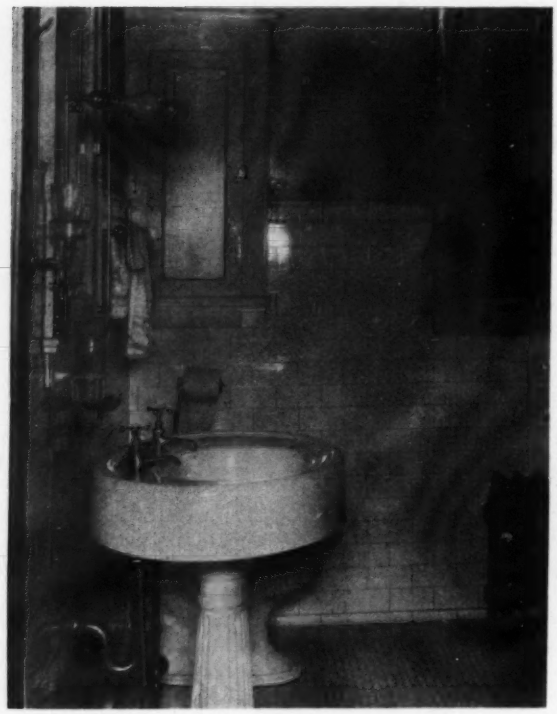


Fig. 3—This is a view of one of the old bathrooms with the old fashioned plumbing and radiation

recently notified all employees, that new rentals on all small flats (up to and including three rooms) will be raised a minimum of $2.50 per month, as the demand exceeds the supply. The writer had a 5 room flat available about two weeks ago, had 12 to 15 interested prospects inside of a week, and leased it to a man who was able and willing, for a slight reduction in monthly rate, to pay three months rent in advance to cover the cost of decorating and minor repairs. And such indications of a demand for homes are common today in many sections of the city.

Any man in any branch of construction work is, of course, interested in the growth of a demand for housing, and must have his own opinions as to whether or not a shortage will develop, and how it will be remedied. I have been very fortunate in having facilities to learn conditions here, and I believe a shortage is bound to occur, of clean, decently equipped homes of the sort the average employed citizen will be contented to live in. How the shortage will be met is another question.

It is apparent that remodeling, or modernizing, or both, of many sound old buildings, is the sane and economical procedure, and one that in most instances can be carried out quickly. What particular properties can profitably be rejuvenated and in what manner, must be determined by careful investigation of each case.

As a proof of what can be done by remodeling and modernizing, cost estimates and an operating set-up for an old building are reproduced here. Some buildings can, of course, be put into shape with less capital expenditure. Many cannot be made profitable. As stated before, remodeling and modernizing requires individual figuring in each case, before an opinion is of any value.

OPERATING SET-UP REPRODUCED

The building in question is of brick, with stone and terra-cotta trim, wood floors, and a rather ornate appearance. It is 25 to 30 years old. At present there are six apartments each with ten rooms, three baths and two roof bungalows, each with a large living room, 3 bedrooms, 1 bath, and with access from the top-floor apartments. The building is in excellent physical condition, and evidently was constructed of the best quality of materials and workmanship. Many maintenance jobs, however, such as exterior painting, and repairs to sheet metal, have been neglected for several years.

This property is one block from a main Chicago boulevard, a few blocks from bathing beaches and about three blocks from a nationally famous hotel. Many apartment hotels have been built in the vicinity during the last ten years.

People who have sufficient income to furnish and maintain apartments of this size do not live in old-fashioned apartments in this neighborhood today. Consequently, this building's rentals are low, its vacancies are high, and its income falls somewhat short of total actual expenses.

The plan upon which the figures given are based, is to make each of the 6 large apartments into 6 small units,

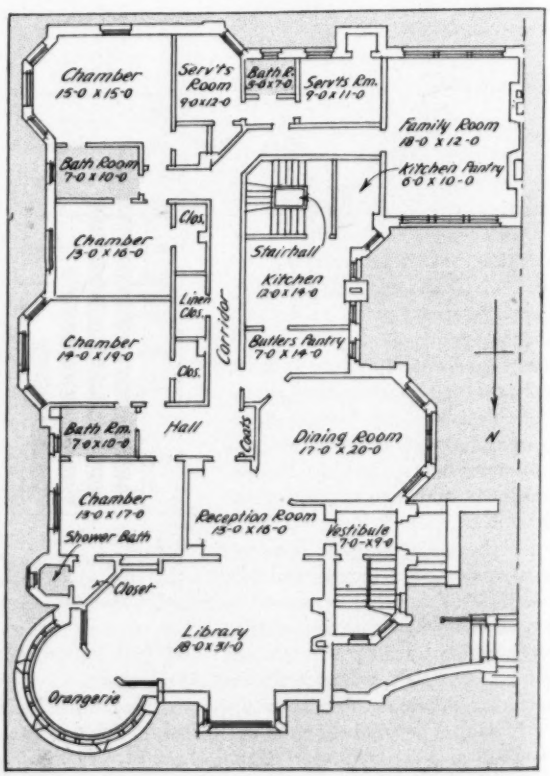


Fig. 4—At the right is one of the typical floor plans as the building now is arranged

and to convert the bungalows into more useful space. The layouts reproduced show the plan, Fig. 5, of a typical apartment, and the division into small units. The new apartments, on the whole, are superior to units of this type usually found in the amount of closet space and size of living rooms. Three of the units would be exceptionally attractive.

ESTIMATE OF COSTS

CAPITAL EXPENDITURE—REMODELING

To remodel a typical apartment:

New bathroom equipment, 3 at $180.00	$ 540.00
New kitchen equipment, including refrigerators installed, 6 at $200.00	1,200.00
Carpentry, labor and material	600.00
Plastering	200.00
Electric Wiring and Fixtures	200.00
Heating changes	100.00
Beds	200.00
Decorating	200.00
	$ 3,240.00

TOTAL CAPITAL EXPENDITURE—REMODELING

6 units (present) remodeled at $3,240.00	$19,440.00
2 Roof Bungalows remodeled at $1,000.00	2,000.00
Provide basement space for storage	560.00
	$22,000.00
Fee for architect, for designs, specifications, estimates, supervision, etc., 6% of $22,000.00	1,320.00

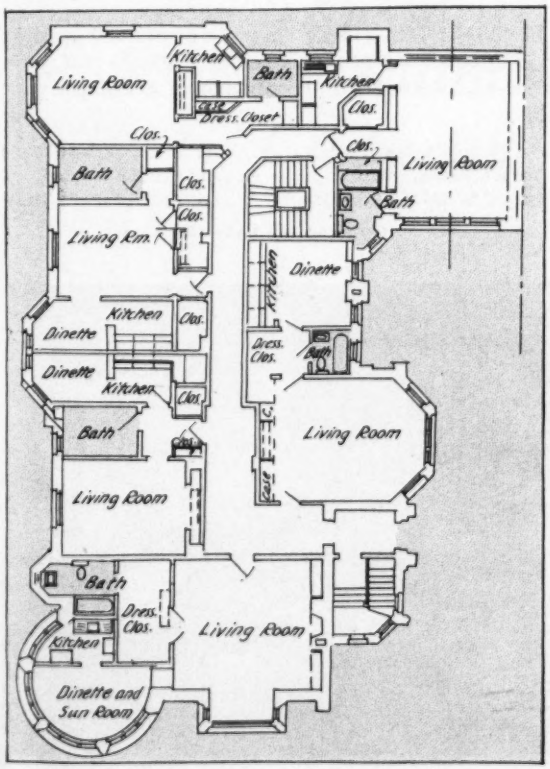


Fig. 5—At the left is a floor plan as it can be arranged with six apartments to each floor

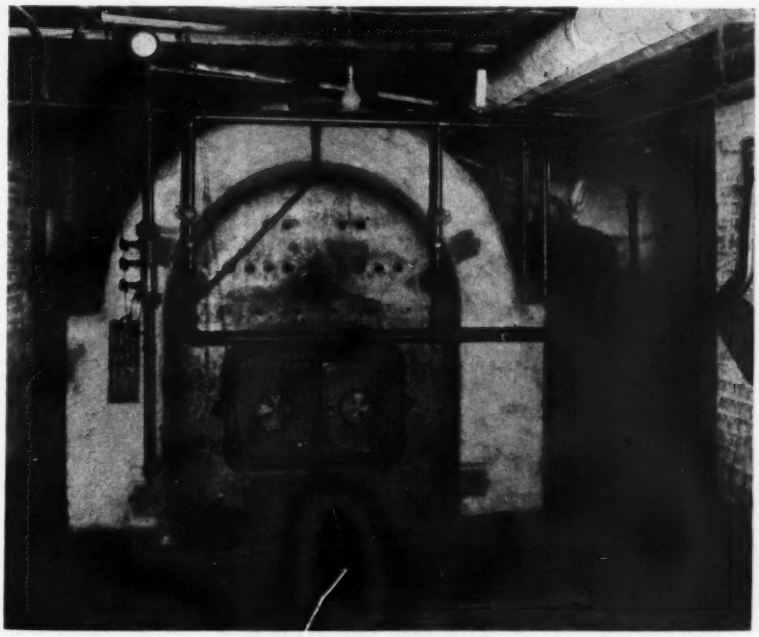


Fig. 6—The heating equipment is shown here. It needs repairs and new water heating facilities

MAINTENANCE EXPENSES—BUILDING REPAIRS

Paint exterior	500.00
Decorate halls	300.00
Overhaul and repair heating system, provide a new hot water storage tank, repair roof, sheet metal	880.00
	$ 1,680.00
Contingencies	500.00
Total Cost, Remodeling and Repairs	$25,500.00

This building, if remodelled as shown, should be rented with the apartments furnished. There are two courses open to the owner in operating the property:

1—Provide furnishings and equipment, and rent to individual families. Furnishings and equipment would cost today, approximately—

36 Apartments at $350.00	$12,600.00
2 Roof Bungalows	900.00
Total cost, furnishing	$13,500.00

2—Lease the entire property, as remodelled, to a hotel or apartment operator, who will provide the furnishings and do the renting to individual families.

Income

The rentals, at present day prices, for the apartments shown, should be as follows:

1 apartment	@	$65.00	$ 65.00
1 apartment	@	60.00	60.00
2 apartments	@	50.00	100.00
2 apartments	@	45.00	90.00
			$315.00

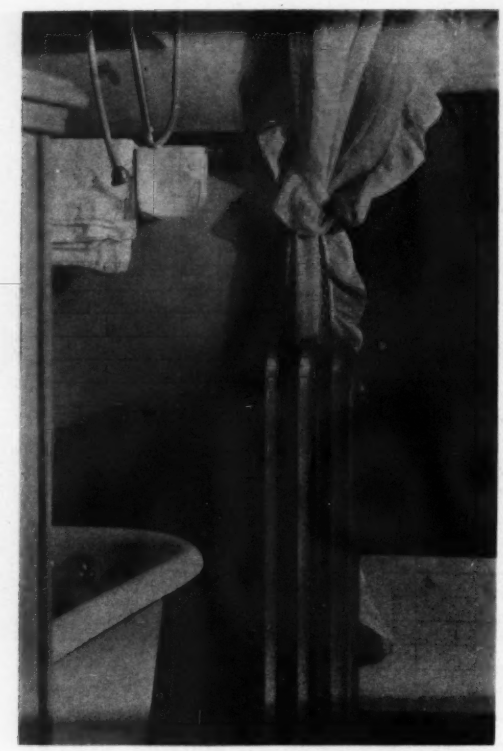


Fig. 7—This shows a corner of one of the bathrooms with its old style fixtures

or an average of $52.50 per apartment. Revenue from 34 apartments after deducting one each for manager's residence and office is

34 apartments @ $52.50	$ 1,785.00
Assume 2 bungalows	215.00
	$ 2,000.00

EARNINGS UNDER PLAN (1)

Yearly income 12x$2,000.00	$24,000.00
Deduct 10% for vacancy and bad accounts	2,400.00
Balance	$21,600.00

EXPENSES

Fuel		$1,200.00
Janitor		1,850.00
Maids		1,200.00
Gas, Electricity and Water		1,400.00
Decorating, 5% of $21,600		1,080.00
Salary of manager, plus apartment		1,000.00
Taxes (1931 assumed to continue)		2,400.00
Bldg. & Equip. maintenance and insurance		450.00
Janitor Supplies	100.00	
Laundry	800.00	
Depreciation and repairs on furnishings	1,500.00	
Agents' commission, 5% of $21,600.00		1,080.00
		$14,060.00

Net Income $21,600.00 minus $14,060.00 leaves an estimated net of $7,540.00 or a return of approximately 19½ percent on the total outlay of $39,000 which includes purchase of furnishings.

Earnings under plan (2) (Net Lease)

In cases described under (2), usually the building is not as well maintained as when it is under owner-operation, as the lessee is only interested in keeping it in operating condition up to the expiration of his lease. It is the writer's observation also that net lease operators are able, through experience, to do some renting to transients, thus slightly increasing income, and are able to cut on some of the operating costs. Furnishings under a net lease would not likely be all newly purchased, thus lowering depreciation charges considerably. Therefore, income under a net lease is assumed to be $2,200.00 per month, or $26,400 per year, minus 10 percent, which is $23,760.

Operating expenses under net lease are estimated as follows:

Janitor	$1,350.00
Other help	800.00
Manager's salary	700.00
Laundry	600.00
Furniture Repairs and Depreciation	800.00
Bldg. and Equipment Maintenance and Insurance	350.00
Other expenses as before, except taxes and agent commission not included	3,780.00
	$8,380.00

$23,760—$8,380 gives a net profit of $15,380 per year or $1,281 per month. This property should rent, on a net lease basis, for $650.00 per month, or $7,800 per year. year.

Gross income to owner		$7,800.00
Deduct Taxes	$2,400.00	
5% of $7,800 (Agt.'s Com.)	390.00	2,790.00

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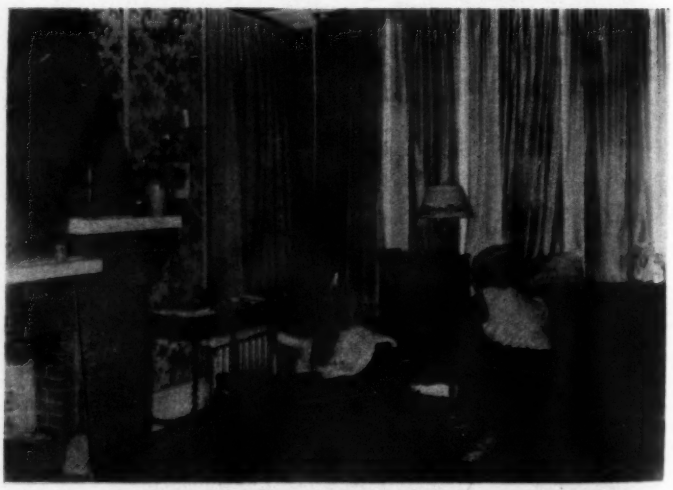

Fig. 8—Here is a corner of one of the spacious living rooms which would be cut down in size with the proposed plans

Plumbing Fixtures and Construction Industry Codes Are Signed

Reprinted in full with an Explanatory Analysis of Plumbing Fixtures Code by L. P. Chase

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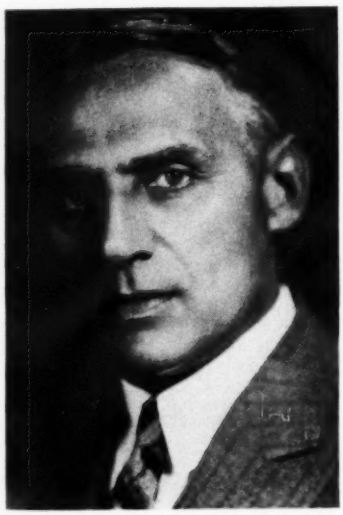
These Codes and others still pending affect every contractor, wholesaler and manufacturer. Send DOMESTIC ENGINEERING your questions about these codes.

The Seven Members of the Code Authority for Plumbing Fixtures



Above, Walter J. Kohler, President, Kohler Co., Kohler, Wisc., chairman; at left, H. M. Reed, President, Standard Sanitary Mfg. Co., Pittsburgh, Pa., and W. Keith McAfee, President, Universal Sanitary Mfg. Co., New Castle, Pa.; at right: George E. Hoffman, Crane Co., Chicago, Ill. and George H. Van Arnam, President, Van Arnam Mfg. Co., Fort Wayne, Ind. Below, left to right: Louis J. Laroche, Dick Bros., Inc., Reading, Pa., and W. G. Moore, President, Humphryes Mfg. Co., Mansfield, Ohio

An Analysis of the Plumbing Fixtures Code

For the Use of Manufacturers, Contractors and Wholesalers

By L. P. CHASE*

AT MEETINGS held in New York City on Feb. 14, the enamelware, vitreous china, brass fittings and seat manufacturing industries elected their members of the Code Authority of the Plumbing Fixtures Industry.

Those elected were George E. Hoffman, manager, plumbing fixtures sales, Crane Co.; former Governor of Wisconsin, Walter J. Kohler, president, Kohler Co.; Louis J. Laroche, vice president, Dick Brothers, Inc.; W. Keith McAfee, president, Universal Sanitary Mfg. Co.; W. G. Moore, president, Humphryes Mfg. Co.; H. M. Reed, president, Standard Sanitary Mfg. Co., and George H. Van Arnam, president, Van Arnam Mfg. Co.

The Code Authority organized immediately and elected Gov. Kohler, chairman; W. G. Moore, vice chairman; H. M. Reed, treasurer, and R. Kennedy Hanson, secretary. Attorney L. P. Chase of the Kohler Co., will serve temporarily as counsel of the Code Authority.

The formation of the Code Authority culminates eight months of effort on the part of the manufacturers' committee to secure a code which would protect adequately the interests of everyone engaged in the industry. The committee which presented the code represented both large and small manufacturers of the various products and all channels of distribution.

The code was first approved by the Administration on Jan. 13 to become effective Jan. 16. However, the order of approval stayed for 60 days the provisions relating to purchase price levels, considered the most important provision of the Code, and the manufacturers' committee refused to accept the code in that form.

On January 31, the Administrator approved a slightly amended form of the provision in question with a stay until Feb. 10. When the entire code became effective on the latter date, the New York meetings were called.

The distribution features of the code are found in Section 7 of Article VIII and provide only two levels for sales by manufacturers — the wholesaler purchase price level and the retailer purchase price level. The code makes no attempt to define or to distinguish between wholesaler, contractor, mail order houses, direct-to-you houses or other types of distributors. They are all treated alike and each firm is entitled to buy on one level or the other according to the functions actually performed by it. The functions which qualify a firm for the wholesaler level are specified in the code and anyone who does not perform those functions must buy as a retailer.

According to the definition of the wholesale function, the test is whether one "buys and assembles at wholesale and sells plumbing supplies to retailers or to the retail division of his own business; has a proper investment in his business; maintains an adequate showroom, a warehouse and a sufficiently complete stock of such commodi-

*This analysis is issued by the Code Authority of the Plumbing Fixtures Industry (approved Code No. 204). Mr. Chase is counsel of the Code Authority.

ties to meet the normal plumbing supply requirements of his trade in his territory and maintains an adequate bookkeeping system, sales, office and delivery service."

The "plumbing supplies" referred to in the definition are stated elsewhere in the section to mean not only plumbing fixtures but also the "accessory and complementary products" required for a complete plumbing installation which are sometimes referred to as the slow moving or unprofitable items.

The purpose of the section, it has been stated, is to compensate a firm only for those functions which it performs. It is felt that much of the market demoralization in the past has resulted from giving some firms larger discounts than their services to the manufacturer and consumer justified. They were thus enabled to offer cut prices as a result of the artificial saving.

To protect those who perform the wholesaler function and their customers from the unfair competition of those who buy direct from manufacturers without performing a wholesaler function, the latter must pay a higher price than the former, the minimum differential to be established by the Code Authority. It is believed that the Code Authority will establish the differential at an early meeting.

The Code Authority has the power to prevent circumvention of the section through misclassification of customers by a manufacturer.

A uniform cost accounting system to be used by all manufacturers is provided for in section 8 of Article VIII and no one can sell below his own cost except to meet the price of an equivalent product of a competitor. The result will be to make the cost of the most economical producer the lowest lawful selling price for the industry.

Each manufacturer is required by Section 10 of Article VIII to publish to the trade and file with the Code Authority his price list and other conditions of sale. Sales at other than the published prices are prohibited.

SET CREDIT TERMS

The Code Authority is authorized by Section 9 of Article VIII to establish uniform credit terms, cash discounts, and showroom discounts. At its meeting in New York on Feb. 15, the Code Authority established maximum credit terms as follows:

Two per cent (2%) cash discount on the net amount of the invoice if remittance is made on or before the 15th of the month following shipment. All invoices not discounted on or before the 15th of the month following shipment will become due, net on the 15th of the second month following shipment. Interest at six per cent (6%) per annum will be charged on all past due invoices from the date invoices become due to date of payment.

A maximum showroom discount of twenty per cent (20%) was esetablished.

Blanket orders are eliminated by Section 1 of Article VIII which provides that only orders for stock for shipment within thirty days of the date of receipt of the order, or orders for specific jobs, will be accepted at the price in effect on date of receipt of the order. All other orders are subject to the prices in effect on date of shipment.

Section 6 of Article VI prohibits consigned stocks.

The quality of products will be assured as a result of a number of code provisions. Section 4 of Article VIII prevents the sale of other than first grade products guaranteed against manufacturing defects, and a uniform guarantee is provided for in Section 5 of Article VIII requiring that defective articles for which credit has been allowed must be either destroyed or returned to the manufacturer thus removing defective ware from the channels of commerce. Section 3 Article VIII provides for the standardizing of sizes, drillings, grading, and minimum specifications of products. Section 15 of Article VII prohibits sale by manufacturers to anyone who buys for resale used or damaged building materials, plumbing products, pipe, fittings, or valves. It is intended to eliminate the misrepresentation to the consumer which sometimes results from the handling of both new and second hand material by the same merchant.

Unbranded products are prohibited by Section 7 of Article VII which requires that all products must be plainly and permanently labeled with the trade name of the manufacturer. Section 9 of the same article prohibits substitution.

DEFINE TRADE PRACTICES

The rest of the sections of Article VII consist of the customary rules relating to discrimination, secret rebates, post-dating and pre-dating of contracts, inducing breach of contract, repudiation of contracts, lump sum bidding, misrepresentation, substitution, defamation of competitors and members of other branches of the industry, commercial bribery, price protection, threats of litigation and similar provisions.

The employment provisions of the code are of the customary sort and provide for a maximum work week of 40 hours. Adult male employees in all except fourteen (14) southern states will receive a minimum wage of 40c per hour. The minimum for adult males in the south is 35c per hour. The minimum wage for adult female employees is 35c per hour while the minimum wage for minors, both male and female, is 32c per hour in the north and 28c per hour in the south. Men and women performing substantially the same work will receive the same pay. Child labor is prohibited, and provision is made for a "Safety and Health Manual" for the industry.

The duty of administering the code rests with the Code Authority, which may delegate its powers to the several associations or to other agents. The rules of procedure adopted by the Code Authority at its first meeting provide for investigation and adjustment of complaints in the first instance by the Fair Code Committee of the association. The Code Authority also designates the associations as the reporting agencies for their respective industries. Appeals from the associations will be taken to the Code Authority and matters which the Code Authority is unable to adjust will be referred to the Administrator for final disposition.

Executive offices of the Code Authority are located in the American Bank building, Pittsburgh, Pa., and its organization work is proceeding rapidly.

The next meeting of the Code Authority will probably be held early in March.

Code of Fair Competition for the Plumbing Fixtures Industry

(*Reproduced in Full*)

ARTICLE I—PURPOSE

To effectuate the policies of Title I of the National Industrial Recovery Act, the following provisions are established as a Code of Fair Competition for the Plumbing Fixtures Industry including, Enameled Cast Iron Plumbing Fixture Industry, Vitreous China Plumbing Fixture Industry, Sanitary Seat Industry, Sanitary Brass Plumbing Fitting Industry, and shall be the standard of fair competition for such industries and shall be binding upon every member thereof.

ARTICLE II—DEFINITIONS

SECTION 1.—*Industry.*

The term "industry," as used herein, includes the manufacture and sale of:

(*a*) Enameled cast iron plumbing fixtures, such as bathtubs, shower receptors, lavatories, sinks, drinking fountains, laundry trays, closet tanks, accessories and the like;

(*b*) Vitreous china plumbing fixtures, such as lavatories, drinking fountains, closet bowls, closet tanks, urinals, bathtubs, accessories and the like;

(*c*) Seats of whatever composition, for installation on and for use in connection with closet bowls and the like;

(*d*) Sanitary brass plumbing fittings, such as bath fittings, shower fittings, lavatory fittings, sink fittings, drinking fountain fittings and other completed fittings and trimmings for use in connection with plumbing fixtures and the like;

(*e*) Such branches and subdivisions thereof and such related industries as may from time to time, with the approval of the President, be included under the provisions of this Code.

SECTION 2.—*Employee.*

The term "employee" as used herein includes anyone engaged in the industries in any capacity receiving compensation for his services, irrespective of the nature or method of payment of such compensation.

SECTION 3.—*Employer.*

The term "employer" as used herein includes anyone by whom any such employee is compensated or employed.

SECTION 4.—*Manufacturer or Members of the Industries.*

The term "manufacturer" or "member of the industries" includes anyone engaged in the industries as above defined, or any portion thereof, either as an employer or on his own behalf.

SECTION 5.—*President, Act, Administrator.*

The terms "President," "Act," and "Administrator" as used herein shall mean, respectively, the President of the United States, Title I of the National Industrial Recovery Act and the Administrator for industrial recovery.

SECTION 6.—*Association.*

The term "Association" means, respectively:

(*a*) Sanitary Cast Iron Enamel Ware Association.
(*b*) Vitreous China Plumbing Fixture Association.
(*c*) Seat Manufacturers' Association.
(*d*) Sanitary Brass Manufacturers' Association.
(*e*) National Brass Association.

SECTION 7.—*United States.*

The terms "United States" or "this country," as used herein, include all of the territory of the United States of America, including its insular and maritime possessions, but excluding the Philippine Islands.

ARTICLE III—MAXIMUM HOURS

SECTION 1.—*Maximum Hours of Work.*

No employee shall be permitted to work in excess of forty (40) hours in any one week, or eight (8) hours in any twenty-four (24) hour period, or regularly in excess of six (6) days in any seven (7) day period.

SECTION 2.—*Exempt Employees.*

The maximum hours fixed in the foregoing section shall not apply to salesmen in the field nor to employees in office or factory in managerial, supervisory, executive and technical capacities who receive compensation in excess of thirty-five dollars ($35.00) per week. All such employees shall be listed by their employers with the Code Authority.

SECTION 3.—*Emergencies.*

The maximum hours fixed in the foregoing Section 1 shall not apply to any employee in emergencies; but in each special case, at least one and one-half (1½) times his normal rate shall be paid for hours worked in excess of the maximum hours. At the end of each calendar month every employer shall report to the Code Authority, in such detail as may be required, all such cases.

ARTICLE IV—MINIMUM WAGES

SECTION 1.—*Minimum Hourly Rates.*

The minimum rates of pay for all employees, except those provided for in Section 3 of this Article, shall be as follows:

(a) No male employee over twenty-one (21) years of age shall be paid at a rate less than forty cents per hour, except in the states of Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi, Arkansas, Louisiana, Oklahoma, Texas, New Mexico and Arizona no male employee over twenty-one (21) years of age shall be paid at a rate less than thirty-five cents per hour.

(b) No female employee over twenty-one years of age shall be paid at a rate less than thirty-five cents (35c) per hour.

(c) No employee under twenty-one (21) years of age shall be paid at the rate of less than 32c per hour or 80% of the minimum rate for adult male employees; provided, however, that the number of minor employees receiving less than the minimum rates for adult employees shall not exceed 5% of the total number of employees in any one factory. Minors in excess of said 5% may be employed provided that they be paid not less than the minimum rates for adult employees.

SECTION 2.—*Incentive Compensation.*

The foregoing section establishes a minimum rate of pay, regardless of whether an employee is compensated on a time-rate, piece-work, or other basis.

SECTION 3.—*Minimum Salary Rates.*

No employer shall pay any accounting, clerical or office

employee at less than the rate of fifteen dollars ($15) a week; provided, however, that office boys and girls under twenty-one (21) years of age may be paid not less than 80% of such minimum wage; but the total number of such office boys and girls receiving less than fifteen dollars a week shall not exceed 5% of the total number of employees covered by the provisions of this paragraph. Minor office boys and girls in excess of said 5% may be employed provided that they be paid not less than the minimum rate for adult employees.

SECTION 4.—*Female Employees.*

Female employees performing substantially the same work as male employees shall receive the same rates of pay as male employees.

SECTION 5.—*Wages above the Minimum.*

To the extent practicable, the differences in hourly rates of pay or hourly earnings above the minimum existing on June 16, 1933, shall be maintained, and in no case shall they be decreased. Within thirty (30) days all such readjustments made since June 16, 1933, shall be reported to the Administrator through the Code Authority.

ARTICLE V—GENERAL LABOR PROVISIONS

SECTION 5.—*Child Labor.*

No person under sixteen (16) years of age shall be employed in the industry, nor shall anyone under eighteen (18) years of age be employed at operations or occupations hazardous in nature or detrimental to health. The Code Authority shall submit to the Administrator within ninety days after the approval of this Code, a list of such occupations. In any State an employer shall be deemed to have complied with this provision if he shall have on file a certificate or permit duly issued by the authority in such State empowered to issue employment or age certificates or permits, showing that the employee is of the required age.

SECTION 2.—*Required Provisions.*

(*a*) Employees shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the interference, restraint or coercion of employers of labor or their agents in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection.

(*b*) No employee and no one seeking employment shall be required, as a condition of employment, to join any company union or to refrain from joining, organizing or resisting a labor organization of his own choosing.

(*c*) Employers shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment, approved or prescribed by the Administrator.

SECTION 3.—*Posting Code.*

Each employer shall post in conspicuous places full copies of this Code.

SECTION 4.—*Reclassification.*

Employees shall not reclassify employees or duties of occupations performed by employees so as to defeat the purposes of the Act.

SECTION 5.—*Reports.*

(*a*) Each employer in these industries shall furnish monthly to the Code Authority on forms to be furnished by said Code Authority, a sworn report of the number of persons employed, wage rates in effect, and hours worked during the preceding month in his plant or plants, classified as to occupations, together with other sworn production or employment reports as the Code Authority may require from time to time, and an affidavit that the employer has complied with all the provisions of this Code.

(*b*) Individual reports shall not be available to anyone except the Administrator and the representatives of the Code Authority (who shall not be in the employ of any employer under this Code); provided, however, that in the event of a complaint the Code Authority shall have access to all information pertinent to such complaint. Total figures compiled from such reports shall be available to the members of the Industry.

SECTION 6.—*Health and Safety.*

No employer shall maintain in his plant standards of health, safety and sanitation, or other conditions relating to employment lower than the standards approved for the Industry by the Administrator or provided by the laws of the jurisdiction. A "Safety and Health Manual" for the Industries shall be submitted by the Code Authority for approval by the Administrator.

SECTION 7.—*State Laws.*

Within each State this Code shall not supersede any laws of such State imposing more stringent requirements on employers regarding the age of employees, wages, hours of work, health or general working conditions than provided by this Code.

ARTICLE VI—ADMINISTRATION

To further effectuate the policies of the Act, a Code Authority is hereby constituted to cooperate with the Administrator in the administration of this Code.

SECTION 1.—*Organization and Constitution of Code Authority.*

(*a*) The Code Authority shall consist of seven (7) individuals, or such other number as may be approved from time to time by the Administrator, to be selected as hereinafter set forth. The Administrator, in his discretion, may appoint not more than three (3) additional members without vote to represent the Administrator or such groups or interests as may be agreed upon.

(*b*) The following industries shall each have the following number of representatives:

Industry	*Representatives*
Enameled Cast Iron Plumbing Fixture Industry	2 persons
Vitreous China Plumbing Fixture Industry	2 persons
Sanitary Seat Industry	1 person
Sanitary Brass Plumbing Fitting Industry	2 persons

Each of the above industries' representatives on the Code Authority shall be nominated by the Chairman of that industry's association; except that in the Sanitary Brass Plumbing Fitting Industry one representative shall be nominated by the Chairman of the Sanitary Brass Manufacturers' Association and one by the Chairman of the National Brass Association and elected in the manner hereinafter described.

The members of the Code Authority shall be elected at meetings of the members of the industries called immediately after the approval of this Code by the Administrator and held immediately prior to the effective date thereof. The meetings shall be called by the respective associations and notice thereof shall be sent by registered mail to all members of the respective industries. The notice shall specifically state that voting at the meeting may be in person or by proxy. The members of the Code Authority shall be elected by members of the industries present in person or by proxy at such meetings by a majority vote of members of the industries present in person or by proxy as such.

In the event that this Code shall be wholly adopted by related industries, provisions shall be made for their representation upon the Code Authority by election in the before mentioned manner, and the number of members of the Code Authority shall be increased by one (1) for each such additional industry.

(*c*) Each trade or industrial association directly or indirectly participating in the selection or activities of the Code Authority shall: (1) impose no inequitable restrictions on membership, and (2) submit to the Administrator true

copies of its articles of association, by laws, regulations, and any amendments when made thereto, together with such other information as to membership, organization and activities as the Administrator may deem necessary to effectuate the purpose of the Act.

(*d*) In order that the Code Authority shall at all times be truly representative of the industry and in other respects comply with the provisions of the Act, the Administrator may provide such hearings as he may deem proper; and thereafter if he shall find that the Code Authority is not truly representative or does not comply with the provisions of this Code appropriate modification in the methods of selection of the Code Authority may be made.

(*e*) Participation in any administrative activities or endeavors under this Code shall be based on the following:

(1) Payment of the pro rata share of the cost of administering this Code by becoming a member of one of the Associations; or (2) Payment to the appropriate association of an equitable pro rata share of the expense incurred by such association in administering this Code.

SECTION 2.—*Duties and Powers of Code Authority.*

The Code Authority shall have the following duties and powers to the extent permitted by the Act, subject to the right of the Administrator, on review, to disapprove any action taken by the Code Authority.

(*a*) The Code Authority shall cause this Code to be enforced, and subject to review by the Administrator, shall designate such agents and delegate such authority to them as may be necessary or convenient.

(*b*) It shall investigate complaints of violations of this Code and shall take such steps as may be necessary to secure an equitable disposition of any such complaint. The Code Authority may provide for its own organization, and may make such rules as to meetings, notices, waivers of notice and other procedural matters as it may from time to time determine; provided, however, that notice of meetings shall be sent to the Administrator sufficiently in advance of such meetings to permit the Administrator or his representatives to attend such meetings if desired. The Code Authority may, to such extent as it may determine, act by and through the Fair Competition Committee of each industry.

(*c*) The Chairman or others of each Association shall nominate a Fair Competition Committee consisting of five members who shall be elected by a majority vote of the members of each industry. This Committee shall be charged with the duties of investigating complaints of unfair competition and adjusting same in the light of the provisions of this Code. In cases where anyone accused of unfair competition refuses to abide by a decision of a majority of the Fair Competition Committee, the Committee shall refer its findings and recommendations with respect thereto to the Code Authority for disposition. The final appeal within the Industries shall be to the Code Authority. Appeals from its decision shall be referred to the Administrator for disposition. The decisions of the Code Authority under this paragraph shall be subject to review by the Administrator.

(*d*) The Code Authority may require from time to time the industry or industries, subject to its authority, to submit in total figures for its own consideration and for transmittal to the Administrator such reports, statistical data, and other information as it may require. Such information shall be held confidential and shall not be open to inspection except as to totals of the industry. The compilation of reports shall be performed by individuals who are not in any way connected with members of the Industry or Industries.

(*e*) In addition to the information required to be submitted to the Code Authority as set forth in this Article, there shall be furnished to government agencies such statistical information as the Administrator may deem necessary for the purposes recited in Section 3 (a) of the National Industrial Recovery Act.

ARTICLE VII—TRADE PRACTICES

The following practices constitute unfair methods of competition for members of the industry and are prohibited:

SECTION 1.—*Discrimination.*

To discriminate in prices, terms, discounts, allowances, guarantees, or in any other way between purchasers of the same class, except as hereinafter set forth in Section 7 of Article VIII hereof, whether the material is sold for purchaser's stock, for specific building operations, or for any other specific purposes; provided, however, that nothing in this Code shall be construed to prevent any manufacturer from selecting within the classes established his own customers in bona fide transactions.

SECTION 2.—*Secret Rebates.*

Withholding from, or inserting in the invoice, or other sales documents, facts which make said documents false records, wholly or in part, of the transaction represented on the face thereof, except where modified arrangements are on file with the Code Authority. The secret payment or allowance of rebates, refunds, commissions, credits or unearned discounts, whether in the form of money or otherwise, or the secret extension to certain purchasers of special services or privileges not extended to all purchasers on like terms and conditions.

SECTION 3.—*Post-dating and Pre-dating.*

Post-dating or pre-dating of quotations, orders, invoices, statements or other sales documents.

SECTION 4.—*Inducing Breach of Contract.*

Inducing or attempting to induce the breach of a contract between a competitor and his customer during the term of such contract; provided, however, that nothing in this rule shall be taken to prevent a manufacturer who has quoted on the material involved from calling to the attention of the purchaser, even though the order has been placed and accepted, that the materials for which the order has been placed do not conform in size, quantity or quality to those on which the quotations were solicited.

SECTION 5.—*Repudiation of Contracts.*

Repudiation of accepted orders and other contracts or their attempted cancellation, except for legal cause or by mutual consent.

SECTION 6.—*Lump Sum and Combination Bidding.*

Quoting a total price on any schedule of materials which does not show, and/or which is lower than the sum of, the regular unit prices of the articles comprising the schedule. Where an article consists of two or more parts, which themselves are considered units by the Industry, the unit price of the combination article shall not be less than the sum of the unit prices of the articles which comprise it.

SECTION 7.—*False Marking or Branding.*

The failure to plainly and permanently brand or mark for identification with the name or trade-mark of the manufacturer all products of the industries except parts; and the failure to supply facsimiles of such brands or trade-marks by each manufacturer to the Code Authority. The false marking or branding of any products of the industries which has the tendency to mislead or deceive customers or prospective customers, whether as to grade, quality, quantity, substance, character, nature, origin, size, finish, preparation or otherwise.

SECTION 8.—*Misrepresentation or False or Misleading Advertising.*

The making or causing or knowingly permitting to be made or published any false, materially inaccurate or deceptive statement by way of advertisement, or otherwise, whether concerning the grade, quality, quantity, substance, character, nature, origin, size, finish or preparation of any

product of the industries or the credit terms, values, policies, or services of any member of the industries or otherwise, having the tendency or capacity to mislead or deceive customers or prospective customers.

SECTION 9.—*Substitution.*

The furnishing of articles more or less expensive, of better or inferior quality, or of larger or smaller size than specified without making the proper adjustments in the quoted price and clearly indicating the nature of the substitution.

SECTION 10.—*Defamation.*

The defamation of competitors or members of other branches of the plumbing industry by falsely imputing to them dishonorable conduct, inability to perform contracts, questionable credit standing, or by other false representations or by the false disparagement of the grade or quality of their goods.

SECTION 11.—*Commercial Bribery.*

To give, permit to be given or directly offer to give, anything of value for the purpose of influencing or rewarding the action of any employee, agent or representative of another in relation to the business of the employer of such employee, the principal of such agent or the represented party, without the knowledge of such employer, principal or party. Commercial bribery provisions shall not be construed to prohibit free and general distribution of articles commonly used for advertising except so far as such articles are actually used for commercial bribery as hereinabove defined.

SECTION 12.—*Protection.*

The sale or offering for sale of materials for stock under any form of guarantee to a purchaser or prospective purchaser against either advance or decline in the price of said product, except as herein otherwise provided.

SECTION 13.—*Threats of Litigation.*

The publishing or circulating of threats of suits for infringement of patents or trade-marks or of any other legal proceedings not in good faith with the tendency or effect of harassing competitors or intimidating their customers.

SECTION 14.—*Espionage of Competitors.*

Securing confidential information concerning the business of a competitor by a false or misleading statement or representation, by a false impersonation of one in authority, by bribery, or by any other unfair method.

SECTION 15.—*Used Materials.*

Inasmuch as the handling of both new and second-hand building materials by the same merchant encourages substitution and misrepresentation of products to the consumer, to the detriment of both the consumer and the manufacturer, the sale of the products of this industry by manufacturers to anyone who buys for resale used or damaged building materials, plumbing products, heating products and/or pipe, fittings and valves.

SECTION 16.—*Other Unfair Practices.*

Nothing in this Code shall limit the effect of any adjudication by the Courts, or holding by the Federal Trade Commission on complaint, finding, and order, that any practice or method is unfair, provided that such adjudication or holding is not inconsistent with any provision of the Act or of this Code.

ARTICLE VIII—MARKETING POLICIES

The following practices shall be followed by all members of the industry or industries in the marketing of their products and deviation from such practices and rules shall constitute unfair competition and is prohibited.

SECTION 1.—*Orders.*

All orders over $100.00 shall be signed and cover specified articles to be delivered on or before a definite date. They shall be either accepted or rejected by the manufacturer when received. Only orders for stock for shipment within thirty days of date of receipt of order, and orders for specific jobs, will be accepted at the prices in effect at date of receipt of order. All other orders shall be subject to the prices in effect at date of shipment. The minimum size and maximum delivery time for specific job orders shall be prescribed from time to time, and exceptions to this rule allowed by the Code Authority.

SECTION 2.—*Invoices.*

All sales shall be invoiced at the time of shipment and such invoices, together with credit memoranda and all other documents relating to the sale, shall clearly and accurately state all of the essential elements of the sale, including types and sizes of products, quantities, prices, credit terms, discounts, allowances, date of order, date of acceptance, date of shipment, and other pertinent information. Copies of invoices, together with credit memoranda and all other sales documents, shall be filed with the Code Authority as and when directed by the Code Authority, and in the event of a complaint, sworn copies of invoices, credit memoranda and all other sales documents shall be sent immediately to the Code Authority upon its request.

SECTION 3.—*Standardization of Products.*

After uniform sizes, drillings, grading rules and minimum specifications shall have been established by the industry subject to review by the Administrator, proper charge shall be made for deviation therefrom.

SECTION 4.—*Grading.*

No manufacturer shall sell in the United States other than first grade products guaranteed against manufacturing defects. Such guarantee shall be uniform among all manufacturers, as specified by the Code Authority, and shall provide for furnishing new products of the same type and size to replace those which have proved defective on the same basis as the original purchase, but it shall not cover charges for labor or consequential damages, provided, however, that in exceptional cases, a manufacturer may make additional allowances because of defective materials upon filing a complete report thereof with the Code Authority.

SECTION 5.—*Field Inspection.*

No manufacturer shall allow credit for a defective article until the fact of such defect shall have been established by an authorized representative of the manufacturer and the article shall have been destroyed or returned to the manufacturer, except as may be otherwise required by law, or a court of competent jurisdiction. Deviation from this rule as to each industry may be permitted by a majority vote of the members thereof.

SECTION 6.—*Consigned Stocks.*

No manufacturer shall consign stocks of the products of these industries to distributors, contractors, manufacturers' agents and/or others. All consigned stocks in existence on the effective date shall be entirely liquidated by the consigning manufacturer as soon as practicable and within a period of not to exceed 90 days therefrom or at the expiration of contracts existing on that date which by their terms cannot be terminated within 90 days, copies of such contracts to be filed with the Code Authority.

SECTION 7.—*Distribution.*

The functions of manufacturing, wholesaling and retailing the products of these industries each constitute a separate business.

In recognition of the fact that the products of these industries cannot be installed in ultimate service without the performance of wholesaling functions such as assembling, warehousing and buying in bulk of these products and of

accessory and complementary products by individuals, firms, or corporations, either exclusively or in conjunction with the performance of the function of retailing, said individuals, firms, corporations or other persons, in consideration of the performance of such wholesaling function and of purchasing in wholesale quantities, shall receive a trade discount from published prices greater than the trade discount accorded to any individuals, firms, corporations or other persons who do not perform the wholesaling function hereinabove described. The difference between the trade discount allowed to these individuals, firms, corporations or other persons performing such wholesaling function, and the trade discount accorded to other purchasers for resale, shall be determined by each individual manufacturer in establishing his wholesale purchase price level and his retail purchase price level; but in no case shall such difference be less than the percentage determined by the Code Authority with the approval of the Administrator, subject to modifications made therein from time to time with the approval of the Administrator, such percentage and such modifications therein to be confirmed by immediate studies of the value to the consumer of the functions involved. Such studies shall be made by an impartial fact-finding agency under the direction of the Code Authority.

No manufacturer may sell on the wholesale purchase price level except to an individual, firm, corporation or other person who buys and assembles at wholesale and sells plumbing supplies to retailers or to the retail division of his own business; has a proper investment in his business; maintains an adequate showroom, a warehouse and a sufficiently complete stock of such commodities to meet the normal plumbing supply requirements of his trade in his territory and maintains an adequate bookkeeping system, sales, office and delivery service.

Manufacturers' sales to all others who purchase the products of these industries for resale shall be on the retailer purchase price level, and no manufacturer shall sell the products of these industries to anyone other than for resale, except to employees for their own use.

No manufacturer shall sell the products of these Industries to anyone except to manufacturers subject to this Code at better than his wholesaler purchase price level. Customers who qualify for such level may be further classified by each manufacturer on the basis of volume of purchases or on any other basis as specified in his published prices and other conditions of sale which he has filed with the Code Authority in accordance with Section 10 of this Article, but in no event shall the special discount exceed five per cent (5%) beyond the net price for the wholesaler level.

Each manufacturer shall file with the Code Authority, when required by it, but in confidence, the names of customers sold by him on each price level, his schedule of special discounts and such other information as the Code Authority may require. If the Code Authority, after investigation, finds that any manufacturer has classified a customer contrary to the provisions of this section, it shall so notify the manufacturer and require him thereafter to sell such customer on the proper level.

Any manufacturer engaged in more than one level of the Plumbing Industry (manufacturing-wholesaling-retailing) shall conduct each business separately and with an individual system of accounting for each in acordance with the respective codes for the various levels of the Industry.

In order that the consumer may be informed of the fair prices of products of the Industries, each manufacturer shall publish and distribute a suggested fair price for sales to the consumer of each of his products, except parts and specialties.

SECTION 8.—*Cost Protection.*

The Code Authority shall promptly cause to be developed and submitted to the Administrator a uniform system of cost accounting designed to make possible the accurate determination by each member of the Industries of his own individual cost.

Upon approval by the Administrator of such system of cost accounting, necessary information concerning it shall be distributed by the Code Authority to all members of the Industries.

Thereafter, no manufacturer shall sell or exchange his products in the United States (except on close-outs) at a price or upon such terms and conditions as will result in the customer paying for such goods less than the cost to the seller of producing and marketing the same in this country as determined by the uniform cost accounting system; provided, however, that he may sell below his cost when necessary to meet the price of any equivalent product of any competitor against whom he is bidding for any specific job or order. All such cases are to be reported immediately to the Code Authority.

When a manufacturer is engaged in more than one line of business, each business shall be considered a separate unit for purposes of ascertaining costs, and general expenses of all kinds shall be properly and fairly allocated to the several business units.

SECTION 9.—*Uniform Terms of Sale.*

No manufacturer shall sell his products on any basis more favorable to the purchaser than the credit terms, cash discounts for early payments and showroom discounts, established from time to time by the Code Authority in cooperation with the respective associations.

SECTION 10.—*Published Lists.*

Within ten (10) days after the effective date of this Code, each manufacturer shall publish and distribute among each class of purchaser whom he sells, his price lists applicable to that class for various types and sizes of products, including in such lists or in supplementary writings, copies of which must be filed with the Code Authority, all of his conditions of sale, including trade discounts, for such class of customers. All changes in such price lists, discounts and conditions of sale shall be filed with the Code Authority immediately upon publication thereof. The Code Authority shall distribute such price information, except the special discounts provided in Section 7 of this Article, to all manufacturers of the respective Industry. No manufacturer shall sell his products in the United States, except on close-outs, to anyone, except to employees for their own use, for any purpose whatsoever, at any prices or on any terms and conditions other than those indicated in his published lists; provided, however, that he may sell any of his products at the price of any equivalent product of any competitor who is offering to sell below his own published prices or terms. All such cases shall be reported promptly to the Code Authority.

SECTION 11.—*Close-outs.*

A manufacturer may sell, at less than his published prices, products acknowledged by the Code Authority, to be obsolete. Invoices for such sales shall be clearly marked "Special Price on Account of Closeout."

ARTICLE IX—MODIFICATION

SECTION 1.—*Presidential Modification.*

This Code and all the provisions thereof are expressly made subject to the right of the President, in accordance with the provisions of subsection (*b*) of Section 10 of the National Industrial Recovery Act, from time to time to cancel or modify any order, approval, license, rule or regulation issued under Title I of said Act and specifically, but without limitation, to the right of the President to cancel or modify his approval of this Code or any conditions imposed by him upon his approval thereof. By presenting this Code, however, the members of these Industries and others as-

senting hereto do not thereby consent to any modification thereof, and they reserve the right to object individually or jointly to any such modification.

SECTION 2.—*Amendment and Termination.*

Such of the provisions of this Code as are not required to be included therein by the Act may be modified, added to or eliminated, or this Code may be terminated in its entirety at any time in the manner hereinafter provided, subject, however, to the provisions of Section 7 of Article VIII.

Proposals for modifying or eliminating provisions of this Code or for adopting additions to or substitutions for the Code or for terminating the Code in its entirety may be made in writing to the Code Authority by any member of the Industries subject to this Code. The Code Authority shall include such proposal in full in the written notice of the next meeting of the Industries. The question of the adoption of such proposal shall be voted upon at such meeting, and if a majority in plant capacity and number of the members of the Industries present vote in favor of such proposal the Code Authority shall present such proposal to the N.R.A. for Presidential approval when such approval is required. Such proposal shall provide for its effective date. The provisions of this paragraph shall not constitute a limitation upon any right to propose modifications or amendments to this Code which may be granted or conferred by the Act.

ARTICLE X—MONOPOLIES, ETC.

No provisions of this Code shall be so applied as to permit monopolies or monopolistic practices, or to eliminate, oppress, or discriminate against small enterprises.

ARTICLE XI—SUBTERFUGE

No manufacturer shall use any subterfuge to frustrate the spirit and intent of this Code.

ARTICLE XII—EFFECTIVE DATE

This Code shall become effective on the first or the sixteenth day of the month, whichever shall first occur, after its approval by the Administrator.

Code of Fair Competition for the Construction Industry

Approved on January 31, 1934, by President Roosevelt

PURPOSES

To effectuate the policies of Title I of the National Industrial Recovery Act, the following provisions are established as a Code of Fair Competition for the Construction Industry, and shall be the standard of fair competition for this industry and shall be binding upon every member thereof.

CHAPTER I—GENERAL PROVISIONS*

ARTICLE I. APPLICATION

The provisions of this Code shall apply to the entire industry as hereinafter defined, excluding operations therein undertaken in accordance with bona fide bids made not more than sixty (60) days prior to the effective date, or contracts entered into prior to the effective date; except that the provisions of each chapter incorporated in this Code shall apply only to the division or subdivision of the industry defined in such chapter. In the case of conflict between such chapter provisions and the general provisions of this Code, the chapter provisions shall govern. If any other code of fair competition or a provision thereof, heretofore or hereafter approved by the President, shall conflict with this Code or with any provisions thereof, the Administrator may hold such hearings as he may deem necessary and thereafter may, if in his judgment justice requires, grant such stay, exception or exemption, or make such other determination as he may deem advisable to effectuate the policies of the Act.

ARTICLE II. DEFINITIONS

SECTION 1.—*Construction Industry.*†

The term "construction industry" or "the industry" as used herein shall include the designing and the constructing of (and the installing and the applying, including the assembling at the site, of manufactured parts and products incorporated in and to):

(*a*) building structures, including modifications thereof and fixed construction accessory thereto, intended for use as shelter; and other

(*b*) fixed structures and other fixed improvements and modifications thereof, intended for use in industry, commerce, sanitation, transportation, communication, flood control, power development, reclamation and other similar projects or services; and such related divisions or subdivisions thereof as may be defined in chapters hereof, and included hereunder with the approval of the President.

SECTION 2.—*Division of the Industry.*

The term "division of the industry" or "division" as used herein shall mean a branch of the industry which has been or may hereafter be defined in a particular chapter of this Code. The term "subdivision of the industry" or "subdivision" shall mean a defined section of a division.

SECTION 3.—*Member of the Industry.*

The term "member of the industry" as used herein includes any individual or form of organization or enterprise engaged in any phase, or undertaking to perform any of the functions of the industry as defined in Section 1 hereof either as an employer or on his own behalf, including also but without limitation, architects, engineers, contractors and subcontractors.

SECTION 4.—*Member of the Division.*

The term "member of the division" or "member of the subdivision" includes any member of the industry engaged in one of the divisions or subdivisions of the industry now or hereafter established.

SECTION 5.—*Employee.*

The term "employee" as used herein shall include any person engaged in any phase of the industry, however compensated, but excluding members of the industry.

*Applies to all divisions of the construction industry and must be observed in conjunction with the Chapter for the specific division of the industry.

†Captions to Articles and Sections, where omitted in the official draft, have been added by the Construction League to assist the reader.

SECTION 6.—*Employer.*

The term "employer" as used herein includes anyone by whom any such employee is compensated or employed.

SECTION 7.—*President, Act, Administrator.*

The terms "President," "Act," and "Administrator" as used herein shall mean, respectively, the President of the United States, the National Industrial Recovery Act, and the Administrator of Title I of said Act.

SECTION 8.—*Effective Date.*

The term "effective date" as used herein shall mean the thirtieth (30th) day after the approval of this Code by the President, provided that in respect of a particular division an earlier effective date may be specified in the chapter applicable to such division.

SECTION 9.—*Sponsors.*

The term "sponsors of the Code" as used herein means the following national associations of members of the industry which have applied for the approval of this Code and signified their assent thereto:*

1. Construction League of the United States.
2. American Institute of Architects.
3. American Society of Civil Engineers.
4. Associated General Contractors of America.
5. International Society of Master Painters and Decorators, Inc.
6. Heating, Piping and Air Conditioning Contractors National Association.
7. Cement-Gun Contractors Association.
8. National Building Granite Quarries Association.
9. Contracting Plasterers International Association.
10. Tile and Mantel Contractors Association of America.
11. National Association of Master Plumbers of the United States.
12. National Elevator Manufacturing Industry.
13. Roofing and Sheet Metal Industries Conference.
14. Mason Contractors Association of the United States and Canada.
15. American Road Builders Association.
16. National Association of Metal Furring and Lathing Contractors.
17. Asbestos Contractors National Association.
18. National Association of Building Trades Employers.
19. National Association of Builders Exchanges.
20. American Construction Council.

and such other national associations of members of the industry as shall in like fashion hereafter sponsor additional chapters of this Code.

SECTION 10.—*This Code.*

The term "this Code" as used herein shall mean and include, unless the context clearly indicates otherwise, all chapters from time to time included herein, together with any modifications or amendments thereto.

SECTION 11.—*Population.*

Population, for purposes of this Code, shall be determined by reference to the 1930 Federal Census.

ARTICLE III. HOURS, WAGES, AND CONDITIONS OF EMPLOYMENT

SECTION 1.—*Mutual Agreements.*

In each division or subdivision of the industry, as defined in the chapter incorporated in this Code relating thereto, truly representative associations or groups of employers and employees respectively concerned, after proper notice and hearing and as a result of bona fide collective bargaining, may establish by mutual agreement (when approved by the President as provided in Section 7 (*b*) of the Act), for a specifically defined region or locality the standards of hours of labor, rates of pay and such other conditions of employment, relating to occupations or types of operations in such division or subdivision, as may be necessary to effectuate the policy of Title I of the Act. For the purposes of this Section, the entire United States may be defined as a region. The terms of such an agreement between the employers and employees of a division or subdivision of the industry shall not be binding upon the employers and employees of any other division or subdivision of the industry.

After the President has approved any such agreement arrived at within any such division or subdivision, and after proper notice of such approval, it shall be deemed prima facie unfair competition for any employer in such division or subdivision to fail to comply with the standards of maximum hours of labor, minimum rates of pay or other conditions of employment so approved and prescribed by the President, in respect of the performance within the defined region or locality of the types of operations concerned; and the failure of such an employer to desist from such unfair competition after being given due notice and opportunity to be heard, shall constitute a violation of the requirements of this Code.

The Administrator shall establish one or more Boards for each division or subdivision of the industry concerned to investigate any complaints of unfair competition as defined in this section. Each such Board shall consist of two representatives each of employers and employees of the division or subdivision affected, selected by the Administrator from nominations made by such employers and employees respectively in such manner as the Administrator may approve or prescribe, and an impartial chairman named by the Administrator from nominations made by the employer and employee representatives selected to the Board. Each Board shall give notice and opportunity to be heard to each complainant and respondent and thereafter notify said parties of its findings and report them to the Administrator, as a basis for appropriate action to enforce the requirements of this Code. The provisions of this Section shall not be construed to limit the power of the President, in the absence of such a mutual agreement, to exercise any authority conferred upon him under Section 7 (*c*) of the Act.

SECTION 2.—*Other Hours and Wages.*

Where no applicable mutual agreement, as provided in Section 1 of this Article, shall have been approved, employers shall comply with the following provisions as to minimum rates of pay, and maximum hours of labor:

A. No employee, excluding accounting, office and clerical employees, shall be paid at less than the rate of forty (40) cents per hour, provided, however, that the provisions of this paragraph A shall not be construed as establishing a minimum rate of pay for other than common or unskilled labor; and provided further that such provisions shall not be construed to authorize reductions in existing rates of pay.

No accounting, office or clerical employees shall be paid at less than the rate of $15.00 per week in any city of over 500,000 population or in the immediate trade area of such city; $14.50 per week in any city of between 250,000 and 500,000 population or in the immediate trade area of such city; $14.00 per week in any city of between 2,500 and 250,000 population or in the immediate trade area of such city; and $12.00 per week in towns of less than 2,500 population.

The foregoing provisions of this paragraph A establish a minimum rate of pay which shall apply, irrespective of whether an employee is actually compensated on a time-rate, piece-work, or other basis.

B. No employee shall be permitted to work in excess of forty (40) hours per week or in excess of eight (8) hours

*Letters of sponsorship from the National Association of Marble Dealers and the National Electrical Contractors Association were received too late to be included in the list of sponsors.

in any twenty-four (24) hour period, with the following exceptions and limitations:

1. On application of the interested parties and after approval of the National Construction Planning and Adjustment Board or Regional Boards established by it, an employee may be permitted to work forty-eight (48) hours in any one week when the following conditions obtain:

(*a*) On projects located at points so remote and inaccessible that camps or floating plants are necessary for the housing or boarding of a majority of the labor employed.

(*b*) On such remote projects, when working time has been lost because of inclement weather or unavoidable delays in any one week, it may be made up in the following four weeks.

(*c*) In projects in localities where a sufficient amount of qualified labor is not available in the immediate vicinity of the work.

2. The foregoing maximum hours of work shall not be construed as a minimum, either for a day or a week, and if at any time in any locality truly representative groups of employees in a division or subdivision of the industry, through their chosen representatives, express by written request to their employer or employers a desire to share available work in such division or subdivision, the number of hours of work may be reduced by mutual agreement between such employees and their employer or employers. In the event of inability to arrive at an agreement which will not involve undue hardship on either employees or employers, then such difference, with the consent of all parties in interest, may be submitted to the National Construction Planning and Adjustment Board for a decision. The National Board may require the Regional Boards to secure facts and full information relative to such dispute and submit the same to the National Board for its information.

It is not, however, the intent of this provision that any such reduction will be recommended by the National Board to be put into effect if it appears probable that undue hardship might be occasioned thereby to either employers or employees.

3. The following classes of employees are exempt:

(*a*) Employees engaged in professional, executive, or supervisory work.

(*b*) Employees in establishments employing not more than two (2) persons in towns of less than 2,500 population, which towns are not part of a larger trade area.

(*c*) Employees engaged in emergency work, involving breakdowns or protection of life or property.

(*d*) Watchmen.

(*e*) Other employees who may be exempted in chapters of this Code specifically applicable only to the divisions or subdivisions of the industry therein defined.

4. Accounting, clerical or office employees may be permitted to work not in excess of forty (40) hours per week averaged over a period of four consecutive weeks.

C. No employer shall knowingly permit any employee to work for a total number of hours in excess of the hours herein prescribed, whether employed by one or more employers.

SECTION 3.—*Exemptions.*

Where provisions concerning hours of labor or rates of pay have been established for specific projects, by competent governmental authority or agencies (whether Federal, State or political subdivisions thereof) acting in accordance with law, any employer required to comply and complying with the provisions so established shall be relieved of compliance with any conflicting provisions of this Article or of any actions taken in accordance therewith.

Any employer required to comply and complying with the provisions of a valid labor agreement in force on the effective date shall be relieved to the extent of his legal obligations thereunder of compliance during the period of such agreement, with any conflicting provisions of this Article, or of any actions taken in accordance therewith.

SECTION 4.—*Minimum Age.*

No employer shall employ any person under the age of sixteen (16) years, or under the age of eighteen (18) years in any occupation hazardous in nature or dangerous to health.

SECTION 5.—*Construction Planning and Adjustment Boards.*

There shall be established within thirty (30) days from the effective date of this Code, a National Construction Planning and Adjustment Board, and said Board shall consist of twenty-one (21) persons, ten of whom shall be selected by the Industrial Advisory Board of the National Recovery Administration from nominations of the Construction Code Authority and ten shall be selected by the Labor Advisory Board of the National Recovery Administration from nominations of the construction employee organizations, the selection in each case to be subject to the approval of the Administrator, and one person to act as disinterested chairman to be selected by the President upon the recommendation of the Administrator.

The National Construction Planning and Adjustment Board shall have for its fundamental purpose the planning and the development of policies that embrace the broad spirit of cooperation and good will in the furtherance of all matters that relate to the promotion of better relations between employers and employees within the industry and the furtherance of other matters of their mutual interest. It shall have the authority upon its own motion to select technical advisers and seek the cooperation of all factors involved in the stabilization and promotion of the well-being of both employers and employees in the industry, and shall have the authority to make such rules and regulations for its own conduct as it may deem necessary.

It shall, in its own discretion, following the submission by consent of all parties in interest of any difference within or between any divisions or subdivisions of the industry, give consideration and make determinations on all such differences as may arise relating to wages, hours of employment, and working conditions. The decisions of the National Construction Planning and Adjustment Board shall be final and binding on all parties in interest, except that in the event the representative of the Government, the disinterested chairman, shall dissent from the conclusion, the decision shall be held in abeyance until approval or disapproval has been given by the Administrator.

The National Construction Planning and Adjustment Board shall have the authority, and upon its own motion shall establish in properly defined areas, Regional Construction Planning and Adjustment Boards, and said Boards shall be composed of an equal number of members from employer groups and employee groups, and it is further provided that there shall be no disinterested or impartial chairman of said Regional Boards, it being provided that such Boards shall select from their members a chairman and a secretary. The National Construction Planning and Adjustment Board shall upon its own motion submit to the Regional Boards, such problems for study as may in the opinion of the National Board be necessary and such reports of the Regional Boards shall be submitted to the final examination of the National Board.

To these Regional Construction Planning and and Adjustment Boards may be submitted matters from their respective areas in disputes having the same relationship as matters

to be submitted to the National Board, and every effort on their part shall be made to reconcile such existing differences with the requirement that their action shall in all instances be submitted to the National Board for final action.

Nothing in this Section shall be construed as preventing employers and employees in any division or subdivision of the industry as defined in the chapter incorporated in this Code relating thereto from submitting to the Boards provided for in Article III, Section 1 or other Boards similarly composed and selected for consideration and determination, differences that may arise relating to wages, hours of employment, and working conditions, subject to the approval of the Administrator. The findings of fact and determination of such Boards shall be submitted to the National Board for its information.

The cost of conducting the National and Regional Boards herein provided for, shall be borne by the Construction Code Authority, subject to a budget submitted to and approved by it, provided, however, that the cost of the services and the expenses of the members of said Boards, shall not be paid by such Authority.

ARTICLE IV. ADMINISTRATION

To further effectuate the policies of the Act and to administer this Code within the industry and its divisions and subdivions, there shall be established a Construction Code Authority, and Divisional Code Authorities, and other administrative agencies as hereinafter provided:

A—Construction Code Authority

SECTION 1.—*Constituency.*

The Construction Code Authority shall consist of one member selected from and appointed by each of the sponsors of this Code, enumerated in Article II, Section 9 hereof as sponsoring this Code as originally submitted to the President for his approval; except that the Associated General Contractors of America may appoint thereto not more than four (4) members, one of such members to be selected respectively from each of the following component membership groups of said organization: Building Construction, Highway Construction, Railroad Construction, Public Works and other types of construction not heretofore specifically enumerated; together with not more than three non-voting members to be appointed by the Administrator to act as his representatives. To the Construction Code Authority as so constituted and established there may be designated not more than one additional member in respect of each additional chapter hereafter incorporated herein, provided that no such additional member shall be selected by any association enumerated in Article II, Section 9 hereof. The method for the selection of each such additional member shall be described in the corresponding additional chapter. The term of such appointments shall not exceed two years, except that, in the event of code continuance beyond the limit now established by law, terms may be readjusted to insure overlapping tenures of office pursuant to a plan or method approved by the Administrator. Voting members are subject to replacement by the selecting agency with the approval of the Administrator.

SECTION 2.—*Powers and Duties.*

The Construction Code Authority, acting as a unit or through any designed committee or department created by it from its membership, shall have, in addition to any other powers or duties herein conferred upon it, the following powers and duties:

(*a*) It may establish rules and regulations for the conduct of its affairs; and may appoint such committees, agencies and representatives, and delegate to them such of its powers and duties as it may deem necessary for the proper discharge of its functions hereunder.

(*b*) It shall be empowered to cooperate with the Administrator in making investigations and surveys concerning the functioning of this Code, the observance of its provisions and other pertinent matters whether at the request of the Administrator or otherwise, and report its findings and recommendations to the Administrator.

(*c*) It shall collect from members of the industry and compile and furnish to the Administrator any reports and other information required under the Act. Except as may be required for the effective enforcement of the provisions of this Code the reports of individual members of the industry required under this Code shall be confidential and only compiled summaries of such individual reports shall be furnished.

(*d*) In order to collect the information for the Administrator herein called for, it may require, either directly or through any Divisional Code Authority, the registration, in such manner as it may deem appropriate, of all construction work or services of or in excess of $2,000 in value, and in order to defray the expenses of such registration and of the administration of this Code may apportion such expenses on the basis of the value of the work or services so registered, but in no case shall the charge be less than $2.00. The proceeds derived therefrom shall be apportioned upon an equitable basis between the Construction Code Authority and such Divisional Code Authorities as shall cooperate in procuring the registration of such work or services.

(*e*) It may propose modifications of or amendments to the general provisions of this Code which, after submission to the Divisional Code Authorities affected thereby, may be recommended to the President for his approval, and upon such approval, following such notice and hearing as he may prescribe, shall have full force and effect as provisions hereof.

(*f*) It may exercise the foregoing powers and duties in any division of the industry for which no Divisional Code Authority shall have been established; and, if in its opinion the policies of the Act require, it may recommend to the Administrator that an aditional chapter of this Code be established for any such division of the industry.

(*g*) Its members or authorized representatives may attend meetings of any Divisional Code Authority, and it may at any time make appropriate recommendations to the Administrator to insure the proper functioning or representative character of any such Divisional Code Authority.

(*h*) It may secure an equitable and proportionate payment of the expenses of its establishment, maintenance and activities from members of the industry.

B—Divisional Code Authorities

SECTION 1.—*Procedure for Establishing.*

There shall be established for each division of the industry a Divisional Code Authority which shall, within the limitations provided herein, administer within such division, this Code and the provisions of any chapter hereof applicable specifically to such division. The procedure for establishing each such Divisional Code Authority shall be defined in the chapter pertaining to that division of the industry. The non-voting members appointed by the Administrator to the Construction Code Authority (or their proxies appointed by the Administrator) may serve in like capacity with respect to any Divisional Code Authority.

SECTION 2.—*Powers and Duties.*

Each such Divisional Code Authority shall, in addition to any other powers and duties conferred upon it in the chapter applicable to its division, have the following powers and duties:

(*a*) It may establish rules and regulations for the conduct of its affairs and may appoint such committees, agencies and representatives and delegate to them such of its

powers and duties as it may deem necessary for the proper discharge of its functions hereunder.

(*b*) It shall cooperate with the Administrator and with the Construction Code Authority in making investigations as to the functioning and observance of any provisions of this Code, at its own instance or on complaint of any person affected, and shall collect from members of the industry and compile and furnish to the Administrator, and to the Construction Code Authority, any reports and other information required under the Act. Except as may be required for the effective enforcement of the provisions of this Code the reports of individual members of the division required shall be confidential and only compiled summaries of such individual reports shall be furnished.

(*c*) It shall study the provisions incorporated in this Code applicable to its own division, and the operation thereof, and after submission to the Construction Code Authority may make such recommendations to the Administrator as it deems desirable for modification or addition thereto. Such recommendations, upon approval of the Administrator after such notice and hearing as he may prescribe, shall become a part of this Code and have full force and effect as provisions hereof.

(*d*) It shall receive and so far as possible adjust all complaints as to trade practices between members of its division in the operation of the provisions of this Code applicable to its division.

(*e*) It may secure an equitable and proportionate payment of the expenses of its establishment, maintenance and activities from members of its division of the industry.

C—Representation and Membership

SECTION 1.—*Modification in Selection.*

In order that the Construction Code Authority and the Divisional Code Authorities shall at all times be truly representative, respectively, of the industry and of the divisions, and in other respects comply with the provisions of the Act, the Administrator may provide such hearings as he may deem appropriate; and thereafter, if he shall find that the Construction Code Authority or any Divisional Code Authority, is not truly representative or does not in other respects comply with the provisions of the Act, he may require an appropriate modification in the method of selection of the Construction Code Authority, or of any Divisional Code Authority, as the case may be.

SECTION 2.—*General Requirements.*

The sponsors of this Code who participate in the selection of any Code Authority or administrative agency provided for herein, shall submit to the Administrator true copies of their Articles of Association or Incorporation, Constitution and By-Laws, and other pertinent rules and regulations and amendments when made thereto, together with such other information as to organization, membership, and activities as the Administrator may deem necessary.

In addition to the information required to be submitted by members of the industry or its divisions under this Code, there shall be furnished to government agencies such statistical information as the administrator may deem necessary for the purposes recited in Section 3 (*a*) of the Act. Except as may be required for the effective enforcement of the provisions of this Code, the reports of individual members of the industry required under this Code shall be confidential and only compiled summaries of such individual reports shall be published.

Nothing contained in this Code shall constitute the members of the industry or the members of the Construction Code Authority or of a Divisional Code Authority or any committee or agency thereof partners for any purpose. No member of the industry shall be liable in any manner to anyone for any act of any other member of the industry or any agent or employee thereof pursuant to this Code. No member of such a Code Authority, committee or agency, shall be liable in any manner to anyone for any act of any other member, officer, agent or employee of such Code Authority, committee or agency. Nor shall any member of any such Code Authority, committee or agency, exercising reasonable diligence in the conduct of his duties hereunder, be liable to anyone for any action or omission to act under this Code, except for his own wilful misfeasance or nonfeasance.

ARTICLE V. APPEALS

SECTION 1.—*Construction Appeals Board.*

The Construction Code Authority shall establish, under rules and regulations prescribed by and subject to the approval of the Administrator, a suitable agency to be known as the Construction Appeals Board, to consist of one architect, one professional engineer, three general contractors and four special contractors.

SECTION 2.—*Powers of Board.*

The Construction Appeals Board shall hear and determine the appeals referred to in Section 3 of this Article and shall likewise be empowered to determine, in the event of a conflict between the provisions of the various chapters hereof, applicable to specific divisions or subdivisions of the industry, which of such chapter provisions shall govern.

SECTION 3.—*Complaint within Division.*

Any interested party shall have the right of complaint to the appropriate Divisional Code Authority established for any division of the industry, and of a prompt hearing and decision in respect of any decision, rule, regulation, order or finding made by such Authority or its committees or agencies, under such rules or regulations as may be prescribed therefor and the decision of said Authority thereon may be appealed by any interested party to the Construction Appeals Board.

SECTION 4.—*Appeal to Administrator.*

Any interested party shall have the right of appeal to the Administrator, under such rules and regulations as he may prescribe, in respect of any decision, rule, regulation, order or finding made by the Construction Code Authority or the Construction Appeals Board.

SECTION 5.—*Limitation of Power.*

No decision, rule, regulation, order or finding shall be made by any Code Authority or other administrative agency, excluding the Boards provided for in Article III hereof, provided for in or pursuant to this Code, whether made pursuant to the foregoing sections of this Article V or otherwise, of or in any dispute between employers and employees, or between groups of employees as to the right to perform specific types of work or operations, including cases commonly known as trade jurisdictional disputes.

ARTICLE VI. ADJUSTMENTS

In the event that any member of the industry subject to this Code shall have contracted before June 16, 1933, to purchase goods, structures, or parts thereof at a fixed price for delivery after that date and prior to the expiration of this Code, it is equitable and promotive of the policies of the Act that an appropriate adjustment of said price be made to meet any increase in cost to the seller caused by the seller's having signed the President's Reemployment Agreement or having become bound by any code of fair competition approved by the President; provided, however, that in view of the fact that construction operations customarily involve the furnishing of various goods and structures, or parts thereof by a continuous series of independent long-term contracts and agreements at fixed prices between various parties, such as owners (including government departments), contractors, sub-contractors and others, such adjustments may be made contingent upon similar appropriate

adjustments to be made by all others parties thus participating, from and including the initial vendor of such goods and structures or parts thereof to and including the owners of the works or structure upon which they are used.

ARTICLE VII. COMPETITIVE BIDDING PRACTICES

SECTION 1.—*Competitive Bidding Defined.*

(*a*) The term "competitive bidding" as used herein shall mean the submission at or before a definite predetermined time of comparable proposals by two or more invited persons to an awarding authority to execute a specific program of work, furnishing a definite service or supplying a material specifically required for a particular project at a stipulated price. This does not include furnishing quotations on standard products.

(*b*) The term "awarding authority" as used herein shall mean any member of the industry who may upon competitive bidding award contracts.

SECTION 2.—*Bid Peddling and Bid Shopping.*

(*a*) The practices commonly known as "bid peddling" or "bid shopping" are recognized as unfair and are prohibited. Bid peddling in effect means the offering by the bidder prior to the making of an award of a substitute bid or price lower than the one originally bid without a commensurate decrease in the requirements of the job. The correction of the abuses resulting from such practice is obtainable by regulation restricting or controlling bidders.

(*b*) Bid shopping in effect means the effort on the part of the awarding authority to induce a bidder prior to the making of the award to lower his original bid price without a commensurate decrease in the requirements of the job. The correction of the abuses resulting from such practice is obtainable by regulation restricting or controlling the awarding authority.

SECTION 3.—*Limitation on Bids and Alternates.*

(*a*) Since it is recognized that the preparation of a bid is a service involving an expense to the bidder and that the inviting of an unreasonable number of bids is an economic waste, the awarding authority shall not invite an unnecessary number of bids.

(*b*) Only a limited number of alternate proposals shall be required in connection with any bid, and no alternate proposal of a bidder shall be considered by the awarding authority, unless the privilege of alternate proposals is extended to all bidders.

SECTION 4.—*Uniformity of Information.*

The awarding authority shall make available uniformly to all bidders, plans and/or specifications or other requisite information which shall be sufficiently complete to enable each bidder to prepare a definite bid in accordance with the regulations herein provided for. He shall prescribe terms of competition which shall insure parity of standing to all bidders.

SECTION 5.—*Qualification of Bidders.*

The awarding authority shall not invite bids from a bidder unless such bidder shall have demonstrated to the satisfaction of the awarding authority that he is competent technically and financially to perform the work, and the ability of a bidder to obtain a performance bond shall not be regarded as the sole test of such bidder's competency.

SECTION 6.—*Award at Original Price.*

An award if made shall be made at the bidder's original bid price. It is recognized that competition based solely on price is sometimes unfair and accordingly the awarding authority may make an award to a competitive bidder other than the lowest bidder provided the award is made at such competitor's original bid price.

SECTION 7.—*Receipt of Bids.*

The awarding authority shall designate a specific hour and place for receiving competitive bids. All bids to be submitted by subcontractors shall be delivered to the contractor at least 24 hours prior to the time set for the receipt of the bid of said contractor by the awarding authority. Bids received after such time or from uninvited bidders shall be returned unopened. All bids shall be required to be signed by a duly authorized representative of the bidder and enclosed in a sealed envelope on the outside of which shall appear its identification as a bid for the particular job.

SECTION 8.—*No Influencing of Bidders.*

The awarding authority shall not at any time prior to the specified time for the receipt of bids convey to any bidder information relating to the price or terms of any other bid in order to influence the price or terms of such bidder.

SECTION 9.—*Collusion Prohibited.*

There shall be no collusion between the awarding authority and any bidder, nor between the different bidders in the preparation of any bid. The awarding authority shall not use any bid which is so unduly low as to indicate an error or mistake in estimating without first giving the bidder the opportunity of demonstrating by cost sheets or other methods the correctness of the bid that he has submitted.

SECTION 10.—*Time Limit on Awards.*

The awarding authority shall make an award or reject all bids for the principal contract with the owner within twenty (20) days after the stipulated time for the receiving of bids except where an extension of time has been requested from the bidders and has been consented to by two or more bidders. In the case of bids conditioned upon the award of a previous contract, each succeeding awarding authority shall make an award or reject all bids within thirty (30) days after the award of such previous contract except as to such bidders as shall agree to an extension of time. The right to reject any or all bids may be reserved by the awarding authority, and such rejection shall be made in writing. Where all bids are rejected, bids shall not be again invited or submitted for the mere purpose of obtaining a lower or revised price or prices for substantially the same work previous to the elapse of ninety (90) days from the date of such rejection, except there be a substantial change in the plans and/or specifications, or except there be evidence of collusion, or except there be such a marked difference between the bids submitted and the awarding authority's estimate as to the valuation of the work as would indicate to the awarding authority and his Code Authority the necessity of new bids in order to secure fair competition.

SECTION 11.—*Naming of Subcontractors.*

Before making an award the awarding authority may require any bidder to name the subcontractors whom such bidder intends to employ for the various divisions of the work bid upon.

SECTION 12.—*Rebates, Refunds and Discounts.*

The awarding authority shall not accept rebates, refunds, discounts, or other special allowances or services from a bidder unless included by the bidder in his original bid.

SECTION 13.—*Owners' Compliance.*

The various divisions and subdivisions of the industry may provide in the chapters specifically applicable to such divisions or subdivisions, that members of the division or subdivision shall not submit a competitive bid, as defined in Section 1 (*a*) of this Article, to an owner or any other person, corresponding to an awarding authority as herein defined unless such owner or other person agrees to comply with the regulations provided herein governing an awarding authority.

SECTION 14.—*Checking Bids.*

In order to enforce the practice of fair competitive bidding, the Divisional Code Authorities shall provide, if no such method is provided in the chapter applicable to such division, a method satisfactory to the Construction Code Authority for checking bids submitted by members of such division either by designating a depository for the filing of duplicate bids or by some other acceptable method. The Construction Code Authority may require such changes in any such method as may be necessary to prevent conflict between the various methods which may be adopted by the various Divisional Code Authorities.

ARTICLE VIII. GENERAL.

SECTION 1.—*Labor Provisions of Act.*

Employees shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the interference, restraint, or coercion of employers of labor, or their agents, in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection; no employee and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing or assisting a labor organization of his own choosing; employers shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment, approved or prescribed by the President.

SECTION 2.—*Reclassification of Employees.*

Employers shall not reclassify employees or duties of occupations performed by employees with the intent or for the purpose of defeating the purposes of the Act.

SECTION 3.—*Federal or State Laws.*

No provision of this Code shall supersede any State or Federal law imposing more stringent requirements on employers regulating the age of employees, wages, hours of work, or health, fire or general working conditions than those contained in this Code.

SECTION 4.—*Monopolies.*

No provision of this Code shall be so construed or applied as to permit or promote a monopoly or a monopolistic practice, or to eliminate or oppress or discriminate against small enterprises.

SECTION 5.—*Additional Chapters.*

Additional chapters to this Code may be submitted to the Construction Code Authority for submission by it for the approval of the President but nothing contained herein shall be construed to prevent any representative association or group from submitting any such chapter directly to the President for his approval, provided that the Construction Code Authority, if then established, shall be given an ample opportunity to consider and examine any such chapter prior to its submission to the President to the end that there may be proper coordination within the industry and between its various divisions and subdivisions. Upon approval by the President, such chapter shall become an integral part of this Code the same as if originally included herein, but any exceptions therein to the general provisions of this Code shall apply only to the members of the division, or subdivision of the industry to which such chapter pertains. No specific provision of this Code applicable to its amendment or modification shall constitute a limitation upon any right to propose such amendments or modifications which may be conferred by the Act.

SECTION 6.—*Presidential Powers.*

This Code, and all the provisions thereof, and of any chapter thereof, are expressly made subject to the right of the President, in accordance with the provisions of subsection (*b*) of Section 10 of the Act, from time to time to cancel or modify any order, approval, license, rule or regulation issued under Title I of the Act and specifically, but without limitation, to the right of the President to cancel or modify his approval of this Code, or of any additional Chapter thereof, or any conditions imposed by him upon such approval.

Cast Iron Boiler and Radiator Code Approved

The Code of Fair Competition for the Cast Iron Boiler and Cast Iron Radiator Industry was approved on February 3 and is now in force. It follows in part:

Article VII—Price Lists

Section 1. Upon the effective date of this Code, each member of the industry shall file with the Secretary of the Institute for immediate distribution to all members who file similar reports regarding similar products, copies of all their price lists, covering all cast-iron boilers and/or cast-iron radiators and/or cast iron hot water supply boilers manufactured and/or sold, including therein all prices, terms, discounts, allowances, and conditions relating to or in anywise affecting any sales of the same to classes of purchasers defined in this Code. Such price schedule shall take effect immediately upon the filing thereof. No member of the Industry shall sell products of the industry at prices lower, or upon terms more favorable than provided in his schedule thus filed unless and until revised schedules of prices and terms have been filed by him. Such revised schedules shall likewise take effect immediately upon filing thereof. Revised price schedules may be filed temporarily by telegram.

Sec. 2. The following definitions of classes of customers are hereby adopted for this Industry.

(a) "Wholesaler" is one engaged in the distribution of heating products, plumbing products, and/or pipe fittings, and valves, who has a substantial and proper investment in his business, maintains a warehouse, does not buy for resale, used or damaged heating materials, plumbing products, and/or pipe, fittings, and valves, whose major sales are to heating and plumbing contractors, who purchase for resale as herein provided, and who does not perform directly or indirectly the functions of a low-pressure heating contractor. The sale of pipe, fittings, and valves by a wholesaler for other than resale purposes for the fabrication of pipe will not be considered in conflict with this definition. Two classes of wholesalers shall be recognized.

(1) Those who do not stock either consigned and/or purchased boilers and/or radiators.

(2) Those who purchase and/or receive on consignment boilers and/or radiators in carload lots.

(b) A "Contractor" is defined as one who is licensed, where required by State or local Governments, and who installs heating equipment which he sells to the consumer. Federal, State and local Governments shall be classified as contractors for the purpose of this Code.

(c) A "Mail Order House" is one who has a substantial and proper investment in his business and does business nationally throughout the United States, who buys in bulk quantities, who maintains a warehouse and a sufficiently complete stock of heating fixtures to meet all normal requirements, and who maintains adequate showrooms and whose major business is selling to the consumer.

(d) A "Direct-to-you" is defined as one who has a substantial and proper investment in his business, who buys in bulk quantities, who maintains a warehouse and sufficiently complete stock of heating fixtures to meet all normal requirements and who maintains adequate showrooms and whose major business is selling to the consumer.

The Struggle for a Code*

By ROBERT J. BARRETT

President, National Association of Master Plumbers

NOW I am coming right down to the question of the code. I don't know if there are any wholesalers in the room or not, but if there are, I am going to give the absolute truth as I want you to know the truth from the mouth of one who has been working with your committee.

We started out on April 19, 1933, even before the law was passed, to get together in code work. Our hope and our ambition was that we could get a co-related code. Our thought was that we would first draw up a blanket code which would administer to all branches, and after a blanket code, each one of the three or four divisions would draw a code suitable to take care of labor provisions that we could not cover under this blanket code.

We drew up such a code and carried it into the New Orleans convention. The code that we had drawn up was approved in the New Orleans convention. We were pleased, so that after I took office on the first of July, on the 18th and 19th in the City of Washington, I called a conference of prominent manufacturers, wholesalers, of our directors and our code committee. Gentlemen, from the first time that we opened our mouths in that two-day meeting, there was opposition to the blanket code. They did not want to come under the code, they did not want to be regulated. Even after that two-day conference without success, we still endeavored to get these three codes co-related.

PRAISES MANUFACTURERS

We were very successful with the manufacturers, and I want to publicly state that for the cooperation we got these two days, my hat is off to Governor Walter Kohler, chairman of the manufacturers association code committee, because he had a hellish job on his hands. He brought in manufacturers of enameled ware, manufacturers of earthenware, woodware and manufacturers of brass. In that group there, they dealt with men manufacturing for direct-to-you and mail order houses, but it was under his excellent leadership that they got together, and I want to tell you that it was a man's size job, to bring these factions together. We had help from Harry Reed of Standard and from the Crane Co.

These men labored, and as manufacturers, they are cooperating with us today 100 per cent. There is not a thing that they did not cooperate with us on, and I think it is only my duty to praise with my lips in the highest possible manner, the cooperation I have had from these principal manufacturers.

But, gentlemen, I can not say the same for wholesalers. We have battled along now since July with the wholesalers, trying to get cooperation, but to the present time, we have been absolutely unable to do so. These men are represented in 20 groups having 22 men on their national committee. From the group of 22, a selected group of 9 have been chosen to work out code matters.

We would go into a conference lasting until two and two-thirty in the morning, and they would say "yes" but the next morning, some of them were down to the Government withdrawing all the statements they had made. They would come back from governmental officials and say that they never said such things. I want to pause here and say that I do not believe the majority of wholesalers in this country are of the opinion that this committee of nine is. I still believe that 65 per cent of them are willing to cooperate and go along. Their representative nine does not prove that.

INSISTS ON REAL CODE

They are not representing the thoughts of the men back home. I have in my own city wholesalers who do not know one thing that is going on in that committee, and this committee is meeting there from day to day. I do not condemn these entire nine men, but there are enough on that committee of nine to influence thoughts and get them to vote as they want them to vote.

That is the reason you have no code. I could have had the code for you two to four months ago. I am not willing to bring back a code just for the sake of bringing back one. I would not sell you out like that. What I am attempting to do is to give you a code you can use to correct the evils that have been creeping into this profession for the last 52 years. I want to tell you men that this is a pretty tough job. While I have been laboring honestly for you, threats have been made against me personally. Threats have come to me from outside sources that the wholesalers, if I don't go along with them, will put me out of this plumbing business. If that is so, I am ready to make such a sacrifice.

FIGHTS FOR MINIMUM WAGE

I want to tell you one thing that was a tremendous help to us and that was organized labor. We had written into our code, as have all other industries, a minimum rate for skilled mechanics. The associated general contractors wanted us to take this out of the code. They wanted to go out and do some chiseling. We refused to take a minimum rate out of the code, because no code would be one particle of good if there was not a minimum rate included for skilled mechanics. We intend in time, to make up a cost price structure of what you can purchase materials at. Secondly there will be a new code which calls for uniform cost, which will include uniform overhead. You want to get by, but you won't if labor is still uncertain. It is impossible to do so.

In a few small towns in the South where we have

*From an address at the convention of the Master Plumbers Association of West Virginia.

recently been, skilled labor is down to 30 cents an hour. Other men pay $1.00 and $1.10 an hour, but the men paying high scale wages can not compete with such differentials. If we bring the minimum rate to say $1.00 an hour, it may even cost $1.50 as it does in my city but we can compete on that 50 cents differential. No code is any good unless there is a minimum rate. Labor came to our assistance to such an extent that the construction code was reopened. We appeared before that hearing with a brief. All of the codes of several of the groups were set up on Friday before Christmas and sent over to the White House, and after a protest from labor, the President refused to sign those codes until such time as he could have a hearing with the labor men. That hearing was granted about two weeks ago.

I happened to be in Quincy, Ill., at the time. Seventeen of the general presidents of labor appeared with President Green before the President. They put their case before him, and the President said that they were absolutely within their rights to put a minimum rate in their code. He turned to Mr. Coffield and said that there is no question in his mind about master plumbers of the United States being representative. He ordered General Johnson to allow the insertion of those things into the code, and further suggested that he push the plumbers code through with all possible effort, as a shining example in these United States.

We had another difficulty, about the soil pipe code. We have always been great friends of the soil pipe industry. It came time for them to get a code of fair competition. Their code went in and when it went into the public hearing, it was absolutely O. K. We had no desire to appear before the committee in protection of the code, but shortly afterwards, a monkey wrench flew into the works and the first thing we knew, through some of our inside informants, there was a provision on discount in the soil pipe code that granted the same discount to mail order houses that it did to wholesalers. The discounts to wholesalers were 10-10 and 5 off. The mail order houses had the same discount, 10-10 and 5 off, but to the master plumbers there was only a base and 10, and we were still out. We protested this code to the administrator, but we did not get to first base. He couldn't hear us at all.

OPPOSE SOIL PIPE CODE

We were compelled then to go out and hire expensive attorneys, so we secured the services of Colonel Patrick J. Hurley, secretary of war under the Hoover administration. He is putting up a wonderful battle for us against the soil pipe code. The soil pipe code was reopened and we entered in opposition. We brought out some of the most unpleasant things at that hearing that the soil pipe industry or the government had ever heard. They thought we were unfair. We reported to the government on price fixing.

We brought out the evidence that between January 10, 1933 and February 29, 1933, soil pipe had increased in price 129 per cent. On January 10, the labor in a ton of soil pipe was $4.85, material $7.56, the overhead $4.91, the sale price $17.32 per ton. On June 5, labor had dropped from $4.85 to $4.56, material jumped from $7.56 to $7.66, an advance of 10 cents, but overhead and profit had jumped from $4.91 to $17.45, making a selling price of $29.67. Three months later in September, the price of labor was $4.97, 12 cents higher than the low, material was $8.30, instead of $7.56, overhead and profit jumped from $4.91 to $26.29 a ton making a total selling price of $39.56 a ton, or a jump of 128.3 per cent.

I just want to leave one thought in your minds, and that thought is to be loyal to your association, have faith in your local association, have faith in your state and in your national association. Have the faith that Martha in scripture had. When her brother was dead, she went to the Saviour and said, "Saviour, my brother is dead, but if you had been there, my brother would not have died." The Savior answered her and said, "Your brother is not dead. Whosoever believeth in me, even though he be dead, shall have eternal life."

Put that sort of faith back of your organization, and you can be sure that we will do the best we can.

Tells Wholesalers of Code Work

The Joint National Committee of Supply Wholesalers under date of February 15th, addressed a letter to wholesalers telling them of its activities as they relate to their negotiations with the National Association of Master Plumbers, which read in part as follows:

"Since early in August of last year, the joint national committee have inserted in each and every redraft of our code what was known as a half of a reciprocal rule to govern the sales of Sanitary Plumbing Products to licensed and qualified plumbing contractors in consideration of which the master plumbers' code was to contain the other half of such a reciprocal arrangement by which licensed and qualified plumbing contractors were to confine their purchases to wholesalers. Your committee worked constantly for this arrangement until on or about January 17th last and then removed the clause from our code only after having been advised by a great majority of N. R. A. officials that such clause in both of these codes would never be passed.

"It is the contention of the officials in the National offices of the N. A. M. P. that the joint national committee and its subcommittee of nine, known as the code committee, never have submitted and fought for a reciprocal rule with the N. R. A. The barrage of speeches, telegrams and letters condemning the wholesalers and their committee is entirely based on this very slight difference of opinion—we claim we submitted the rule from August to January and they claim we never submitted it in proper form.

"Your committee is of the opinion that our code in its final form is the best code we have written to date for the wholesalers of this country and for our plumbing and heating contractor customers. We are of the opinion that it enables us in a legal way to perpetuate the principle of distributing our products from manufacturer to contractor to consumer and to fairly compete with others who may choose to distribute otherwise."

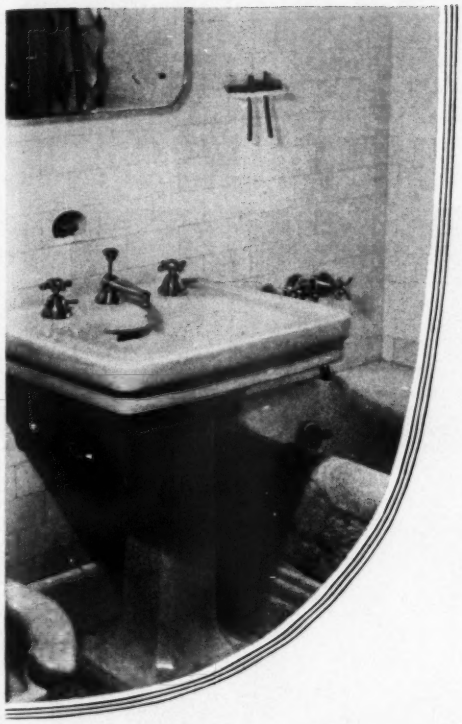


Fig. 1—The view at the left shows a remodeled bathroom. This room, as it appeared before it was changed is shown in Fig. 3

How to Make Remodeling Estimates

Do You Know Radiation Installation Costs?

THE problem of estimating remodeling jobs is not essentially different from new work except that the concealed items of roughing in and pipe work are more difficult to determine.

There are, in fact, two classes of remodeling projects generally encountered in the plumbing and heating field, one involving an almost complete reconstruction of the existing building and the other a minor reconstruction involving the addition of some plumbing or heating convenience or the rearrangement of some portion of the building itself.

The first class of remodeling work is, or will be, encountered in those changing areas in our cities where the growth or spread of the industrial or business sections forces a change in the desirability or use of the older residential locations. The sounder or larger units are usually rebuilt into apartments or flats, hence estimating is much the same as for new work and the roughing in and pipe work can be more readily listed than if the building were not so completely reconstructed.

The second class of remodeling work is, or might be, the backbone of our industry at the present time. It involves the addition in our better class homes of such things as a first floor toilet or wash room, an extra bathroom, or the installation of new fixtures in the existing bathroom or kitchen.

An estimate, either of new or remodeling projects, should indicate two things to the prospective bidder—the material and labor units required and their probable cost. In remodeling estimating, these results are harder to obtain, hence the need for allowances to cover possible discrepancies, not as part of the overhead or selling cost but as a proper and requisite element of the estimated direct cost. The mere addition of an overhead of any predetermined percentage will not guarantee that the job will be done for the direct cost where that cost has not been covered in the estimate. Intelligent bidding of any remodeling job (or, for that matter, if we are to be logical, any job) requires the addition of some value to the estimated direct cost of material and labor to cover contingencies before overhead and/or profit are even considered. Unless our estimator has worked on the building under survey or has shop drawings or layouts of the original installation at hand for reference, it will be difficult to even approximate the material needs and the labor upon which our proposal is to be based. Judgment alone is hardly sufficient.

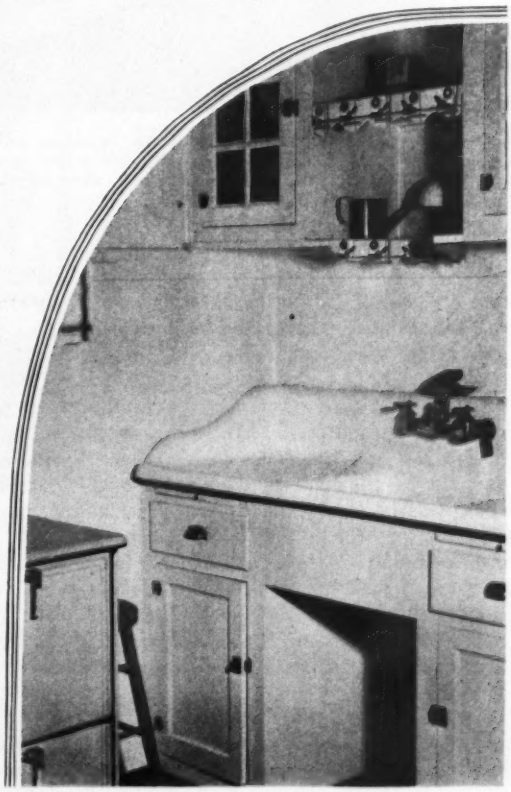


Fig. 2—A corner of the kitchen in the same house containing the bathroom of Fig. 1, is shown here after remodeling. Its corresponding before picture is shown in Fig. 4

Good sense demands protection and protection requires a safety factor in addition to adequate overhead and profit.

This matter of overhead might well be made the subject matter of a considerable volume. Some days ago the writer was discussing business with a new or later addition to our ranks of Master Plumbers. This addition was one of our former journeymen. He mentioned with some pride that he had been awarded the contract for certain work in the home of one or our more affluent citizens. Being somewhat curious to know the details of the operation, we fell to discussing it and particularly the price. He was low alright and deserved the job on that consideration. I found that the cost of the material and a reasonable estimate of labor was at least equal to his price and I expressed a doubt that the job would prove as profitable as he had so pridefully believed, and the argument started. Couldn't I see that he stood to make ten dollars for each and every day he worked on the job? Wasn't this $2.00 more than he would get if still a journeyman on the same operation and wasn't this two bucks so much velvet? With the assistance of a stubby, greasy pencil (his) and the container of a toilet seat I made out the best case I could for my side. First, his labor figure was at best an estimate colored on the short side by his need or desire for the job. He was now a contractor and must furnish his own tools, pay compensation and liability insurance, own and maintain some kind of truck or other conveyance, keep books (later), pay taxes (also much later), rent (to himself or somebody else); in short, earn and absorb all the various and sundry expenses that are an inescapable part of any business.

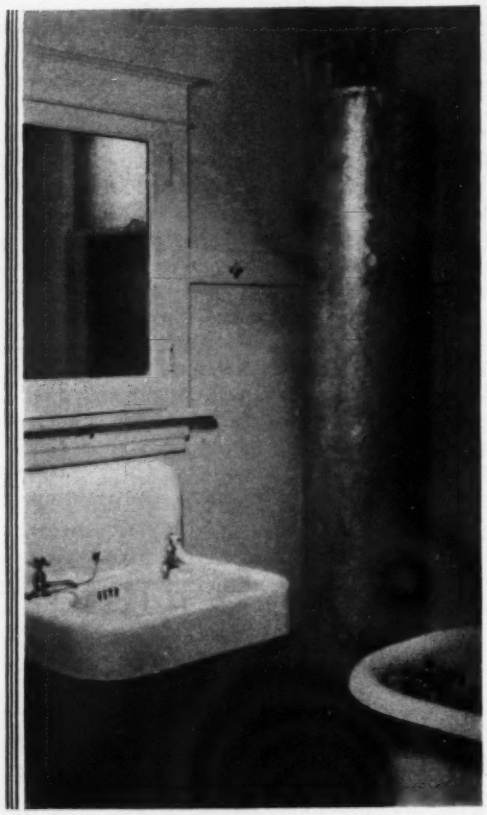


Fig. 3—There still are a great many buildings with bathroom accommodations as antiquated as the ones shown here. Fig. 1 shows this job after it was remodeled

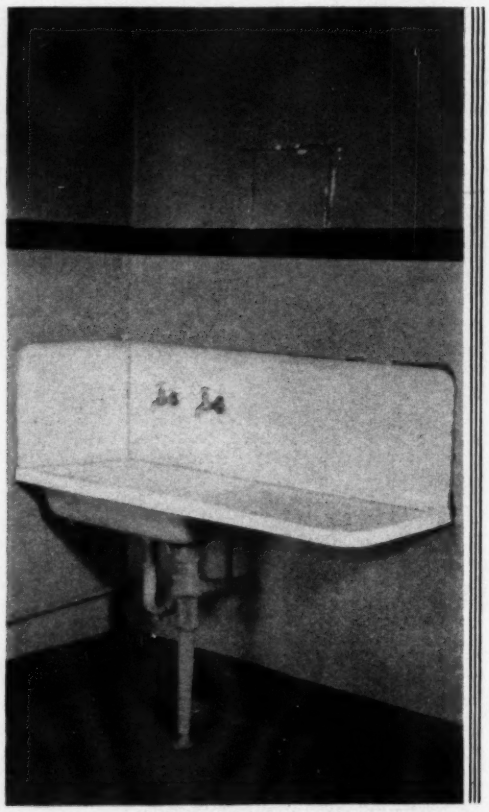


Fig. 4—This is typical of the equipment in a great many of the older homes. How it can be brought up to date is indicated by the view of the same corner, after remodeling, in Fig. 2

Residence Shortage

A marked change in the last six months is shown in the supply of single family residences, according to the 22nd semi-annual survey by the National Association of Real Estate Boards, released on February 10. Actual shortage in this type of structure exists in 27 per cent of the cities reporting whereas only 12 per cent showed such shortage six months ago and only 7 per cent a year ago. The condition of shortage appears to be more prevalent in the smaller rather than the larger cities, but no city of over 500,000 population reported an oversupply of this type structure, and 14 per cent of this group showed a shortage.

Shortage in apartment space is shown in 11 per cent of the cities reporting, as against 5 per cent so reporting six months ago.

FEATURES THAT SELL

dollar value

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performance

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excellence of design

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quality materials

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high grade workmanship

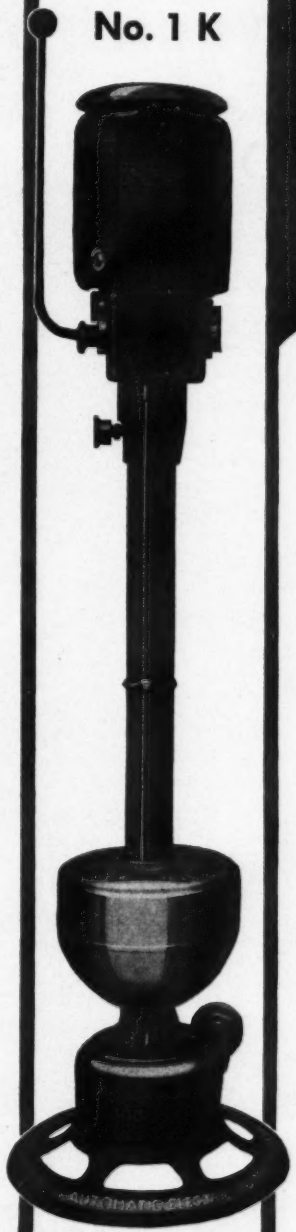
MODEL 33

RETAIL PRICE

$39.50

⅙ h.p. motor
Maximum capacity
1400 gal. per hour.

No. 1 K

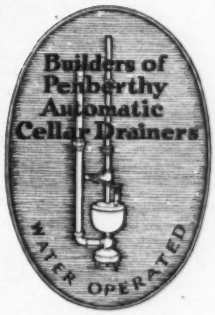


RETAIL PRICE

$65.00

¼ h.p. repulsion-induction motor.
Maximum capacity
3600 gal. per hour.

PENBERTHY PRODUCTS



PENBERTHY Automatic Electric Sump Pumps and Automatic Cellar Drainers are made of copper and bronze throughout—eliminating corrosion. Their exceptionally rugged construction assures long life and satisfactory operation.

The electric pumps have a circuit breaker that protects the motor against damage from overloading or improper voltage. Model 33 Pump is made in one size only for sump depths from 10" to 24"; current 105-120 volts, 60 cycles; 220 volts, 60 cycles optional. Model K Pumps, in addition to their larger capacity, are made in five sizes for sump depths to 8½ feet, and are available in any standard electrical specifications.

Penberthy Automatic Cellar Drainers are also available in five sizes. Like Penberthy Automatic Electric Sump Pumps, they are carried in stock by jobbers everywhere.

PENBERTHY INJECTOR COMPANY

Manufacturers of Quality Products Since 1886

DETROIT, MICHIGAN WINDSOR, ONTARIO

PENBERTHY SUMP PUMPS

QUESTIONS AND ANSWERS!

1—

To the Editor:

Enclosed is a sketch of a hot water heating system that I was called in on the other day. The system had been drained for some time, so I filled it to the overflow, started the fire and taking no notice of the piping, left the job thinking everything would be satisfactory. The next day I got a call that the first floor radiators would not heat except a little at the top. See Fig. 1.

The present owner recently took possession of the house so I am at a loss to know whether or not the first floor radiators ever worked.

I have been a steady reader of Domestic Engineering for some time and I am writing to you for the best method of connecting the radiators to make them work

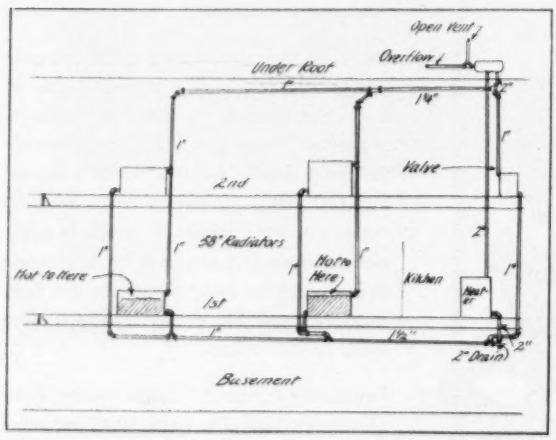


Fig. 1

properly, as the owner would prefer more heat on the first floor than on the second. I have some ideas as to improving the system, but am relying on what you know would be the best.

Cincinnati, Ohio. R. J. P.

To the Reader:

In installing hot water heating systems of the type you show in your sketch, where the heating boiler is on the same floor as the lower radiation, there are two important considerations to keep in mind. First, that the first floor radiation should be of the high type, namely

1. *Return mains of hot water heating system with boiler and radiators on same floor, run under the floor and prevent proper circulation. Reasons are given for radiators not heating.*
2. *Owner has difficulty in controlling hand fired heating plant. Cause of trouble is not apparent from sketch and reader's statement.*
3. *Reader wants to know if his layout shows a good job of plumbing.*
4. *Water heating system is basis of argument. Several reasons are indicated for lack of circulation.*

thirty-eight inches high. Second, that the return pipe to the boiler should be kept above the floor, or as close thereto as possible. When the return pipe is run below the floor, it should be thoroughly insulated to prevent any heat loss from it.

The manufacturer of the equipment you refer to conducted some tests a short time ago to illustrate the effect of the location of the return main on the circulation of the system. They set up an actual system and installed the return above the floor in accordance with recommendations. The system circulated very satisfactorily. Then, they installed the return below the floor and the circulation became sluggish. With the return main dropped down still lower, circulation practically stopped.

Obviously, it is not necessary to follow the rule of installing high radiation on floor levels above the heater.

In summarizing your problem, it may be stated that your system can be corrected in either of two ways. Either change the return connections so that they will be above the first floor level, or raise these pipes as high as possible under the floor and then insulate them. When we say insulate, we mean that a first class job should be done to prevent any heat loss from that part of the return pipe which is located below the first floor level. An extra heavy insulation should be used.

It should be recognized, of course, that there may be some conditions on this job of which we have no knowledge and which might influence these recommendations.

2—

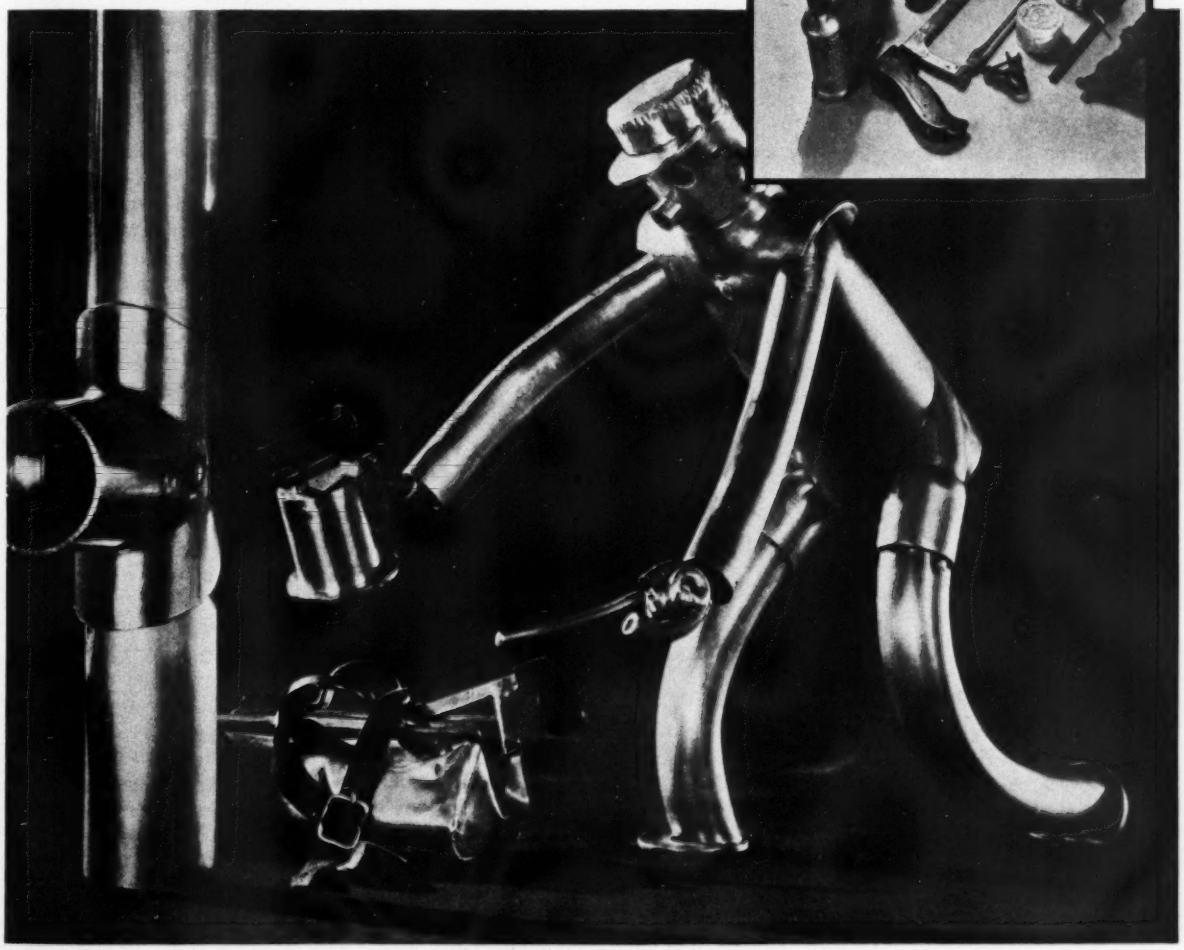
To the Editor:

In the steam system shown in Fig. 2 the owner shakes his fire and opens up the boiler in the morning and the radiators fill with steam. The rooms warm to the re-

LIGHT TOOLS TO CARRY

. . . but it takes a plumber to use 'em

PACK A HACKSAW, template, sizing tool, flux, wire solder, steel wool, blowtorch . . . and you're ready to go. There's no heavy load of tools to carry when you're going to a Chase Sweat Fitting job.



There's no limit to what a man with plumbing skill and training can do with Chase Copper Tube and Sweat Fittings. For example, look at the "copper tube man" in the picture. It took just a few simple tools to assemble him. Outside of a few pieces of Chase brass used for trimmings, he's made entirely of Chase tube and fittings.

Certainly, it took professional skill. But Chase rustless water systems are for professionals. "Handy men" can't handle solder and blowtorch. It takes a plumber!

CHASE BRASS & COPPER CO.—INCORPORATED
WATERBURY, CONN.

FROM COPPER NOSE TO COPPER TOES this "copper tube man" is made entirely of Chase brass and copper. His head is a Chase tee; his legs, Chase elbows; his arms and body, Chase tubing. He stands 7 inches high, is sweated together with Chase solder and carries a blowtorch made of Chase tubing. Thin sheet brass is used for his hat, the tool-bag, and the like.

When you see this mark on copper or brass you're sure of your money's worth.

CHASE RIGID COPPER WATER TUBE AND SWEAT FITTINGS

quired temperature after which the damper regulator closes off the draughts and the fire is checked for an indefinite period. Then the room temperature finally falls to a heat-requiring degree but the boiler does not respond and seems retarded. Investigation shows that the bellows of the regulator are sucked together indicating that the vacuum air valves on the radiators are functioning properly and individually so as to hold a vacuum. It would take many pounds of force to expand the bellows under this condition.

The draughts are then in the open position and the fire is going strong but the steam main remains cold; if the relief valve then is opened and air is admitted to the boiler the water immediately can be heard to begin to boil. The steam main becomes hot and in less than five minutes the boiler will show a pressure. These conditions occur after each checking period. Would

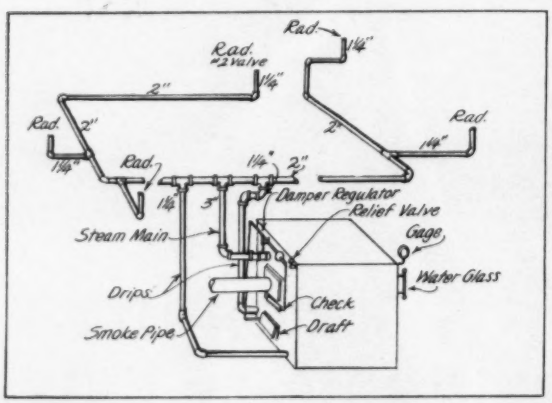


Fig. 2

an expansion valve at the boiler eliminate this condition and not break the vacuum until the heat of the boiler is entirely gone? K. N. C.

Massachusetts.

To the Reader:

There is nothing indicated in neither the diagram submitted nor in the description of the trouble which would account for the peculiar conditions outlined. The lever arm on regulators for steam pressure should have the end connected to the draught chains lower for pressure and raise for lack of pressure or vacuum. The opposite end of the lever—if any—moves in just the opposite direction for the same conditions. If the wrong end of the lever were connected to the draft chains, or if the draft chains are run over pulleys so as to reverse the damper movement, or if the weight is being used on the wrong half of the lever, there is a possibility that the regulator is really shutting off for lack of pressure and opening up with pressure.

Some color is lent to this by the readers statement that the boiler generates a pressure until the rooms are up to temperature at which the regulator closes off the dampers for an indefinite period and until the room temperature falls to a point where heat again is called for. This does not sound at all like a pressure regulator action as with a pressure regulator alone the boiler would go up to the pressure for which it is set and stay there until the coal was burned out. But if a room thermostat is being used in connection with the pressure regulator then the boiler would continue to make steam until the rooms were warm and as long as the pressure did not build up to a point where the safety valve would blow no difficulty would result.

Now if the pressure were operating in reverse under this condition the results might approximate those described in the following manner: assume that the regulator is so balanced that it should close at atmospheric pressure and open at about half a pound below atmospheric pressure, but that it is connected to operate in reverse. Then at atmospheric pressure, the dampers are presumably closed but actually are open; the room thermostat calls for heat and the draughts are opened by the room thermostat because the pressure regulator in reverse will not oppose the room thermostat. The pressure goes up and the rooms get warm when the room thermostat closes the draughts in such a case taking precedence over the pressure regulator. The steam goes down and a high vacuum results.

Then the conditions for the reserved pressure regulator are the same as for a properly connected regulator with high steam pressure and the pressure regulator will not allow the draughts to be opened until this condition is removed this being done by admitting air to the boiler through the relief valves as our reader describes. This is the only set of conditions which we can conceive that would approximate the condition given.

It is, of course, impossible to believe that a boiler which would not form steam under high vacuum would form steam on the admission of air pressure into the boiler. In the first place the boiling point of the water is considerably raised by admitting the air and in the second place the air admitted would have to be worked out through the air valves on the system before the pipe and radiators could be thoroughly heated. We strongly recommend that our reader look over his controls carefully as there is nothing else of which he has advised us that would indicate the possibility of any such trouble.

3—

To the Editor:

Would you inform me as to whether or not the accompanying, Fig. 3, shows a good job? Some contend that

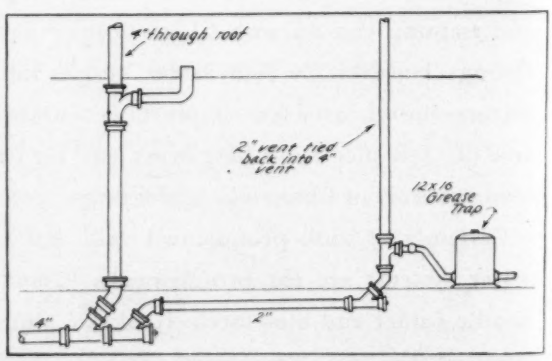
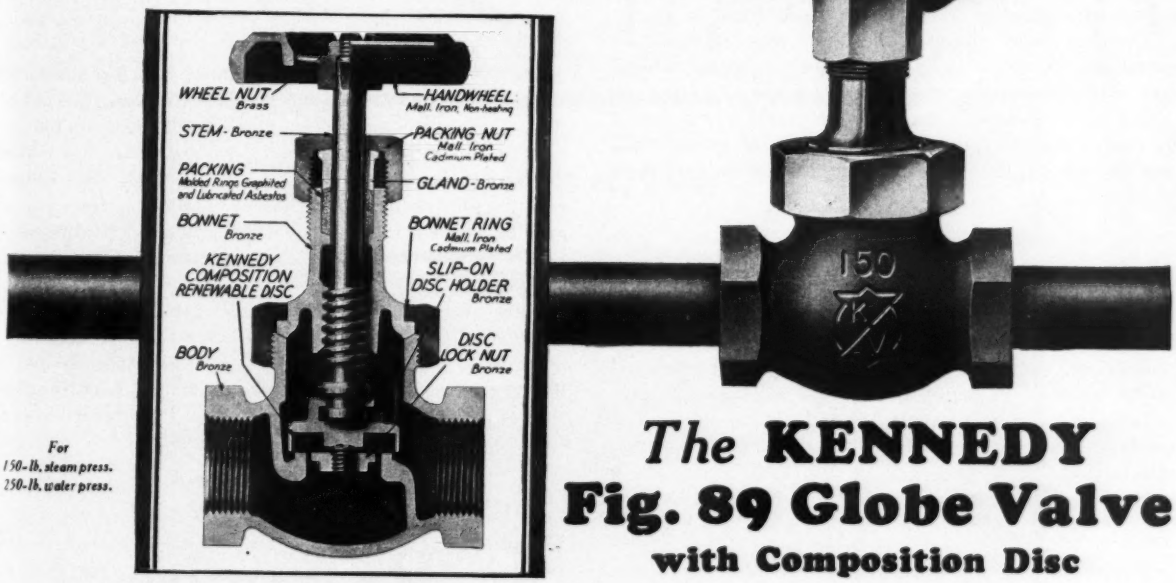


Fig. 3

A new heavy standard bronze globe valve

for better service, longer wear, and easier maintenance



For
150-lb. steam press.
250-lb. water press.

The KENNEDY Fig. 89 Globe Valve with Composition Disc

Some additional features of Kennedy Fig. 89 Heavy Standard Bronze Globe Valve

- Disc holder has four prongs for guidance and to prevent binding
- Raised seat in body is unusually high for longer disc life
- Slip-on disc holder locks at wide-open position
- Stem has large number of heavy contact threads to reduce wear
- Conical joint between stem and bonnet permits packing under pressure
- Stuffing box is exceptionally deep with molded packing and long gland follower

THE first things you will notice on examining a Kennedy Figure 89 Valve are its sturdy proportions and its attractive appearance. A specially interesting new departure is the smooth silvery cadmium plating on the malleable iron union bonnet ring and packing nut. This distinctive finish will not chip off nor be easily marred from wrenches, provides permanent protection against rusting, and has a self-lubricating quality on the threads.

When you try out the operation of this new valve, notice how easily the valve opens and closes. This is because of a special machined low-friction contact surface between the stem head and the disc holder. Notice also the comfortable grip on the octagonal non-heating handwheel with the wheel nut below the level of the wheel so that it cannot burn the palm of the hand.

The outstanding features of Kennedy Fig. 89 make it a distinct advance in heavy standard bronze globe valve design. Order some of these valves from your distributor and try them out at the first opportunity. You will find their easy operation, low maintenance expense and long life make them the best possible valve investment.

The Kennedy Valve Mfg. Co., Elmira, N. Y.

Buy Kennedy Products from your Distributor

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K V

VALVES-PIPE FITTINGS-FIRE HYDRANTS

the 4-in. by 2-in. "Y" should go ahead of the 4-in. "Y," but I fail to see why, and these people cannot give any good reason for their stand on the subject.

Louisiana. E. E. G.

TO THE READER:

We cannot see that it matters greatly whether the waste from the grease trap enters the house drain on one side or the other of the point where the main soil stack enters. Under some conditions there would be greater siphonic influence on the grease trap if the waste connection was made in front of the stack entrance, but in this particular case, with only one water closet discharging into the stack, it would not appear that the matter of siphonage enters into the problem.

There is little choice between the two methods of connecting the grease trap, and either one makes a sanitary installation.

We think however, that the job could be improved by continuing the 4-in. line through to the grease trap, and discharging the latter into 4-in. instead of 2-in. pipe.

4—

TO THE EDITOR:

I am enclosing a sketch, Fig. 4, of a tank installed on a job which I ran across a few weeks ago and do not think it is installed properly. I have asked several their opinion on the installation which incidentally has led up to several arguments, therefore I am taking liberty of asking your engineering department to explain to me how this tank should be installed to insure absolute satisfaction.

Highland Park, Illinois. M. L. E.

TO THE READER:

There are several features about the job as you have sketched it which do not conform to best practice. For one thing, you show a loop in the hot water supply line rising out of the top of the storage tank. This permits the accumulation of air in this pocket with a consequent stop in gravity flow. Of course, this air is carried out with the rush of water under city pressure when a faucet is opened. Another thing is that there is nothing to prevent the flow of water to the fixtures from going through the return line if this is the easiest path for it to follow. This would take cold water from the bottom of the tank. In the event that the suggested connection between D and E were made, this flow of cold water to the fixtures is almost certain to occur.

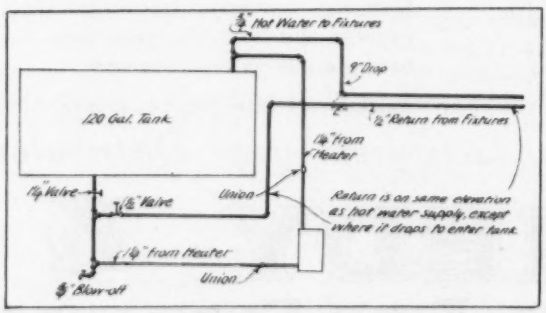


Fig. 4

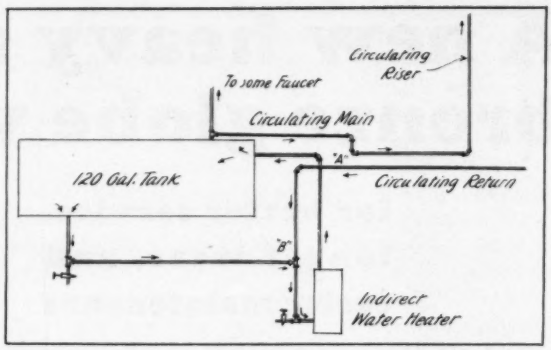


Fig. 5

Our sketch marked Fig. 5, shows the piping as it should be made for improved circulation and at point A, a feather-weight check valve should be installed if it is found in the system that there is any tendency for the supply to the fixtures to flow through the return piping. Our sketch shows how air binding in the system may be avoided if it is impossible to eliminate the drop in the supply main as it leaves the tank. The air accumulating is allowed to rise through the vertical supply serving the next convenient faucet.

Another point might be made about the return connections to the indirect heater. It is desirable to have the greatest pull on the return system. Accordingly, this is favored by having the storage tank return enter the side connection of the tee at point B.

Questions For READERS

The following question was asked in the January issue, and the following answer is by a reader:

In an air conditioning plant using ice for cooling, suppose that an even 100-lb. keg of ice is placed in the cooling chamber. When all of the ice is melted, will there be more or less than 100 lb. of water wasted to the drain?

Under ordinary conditions, if warm summer air passed over a 100-lb. cake of ice, when the ice is melted there will be more than 100 lb. of water. The reason for this is that air contains water in the form of water vapor. When the temperature of the air is reduced below the point at which the air becomes saturated with water, then some of the water condenses out. It should be pointed out here that the ability of air to hold moisture depends upon the temperature of the air, more moisture being held when the temperature is high than when it is low. Just how much more than 100 lb. the water from the cake of ice will weigh will depend upon how much water was in the air at the start, the degree to which the air is cooled and similar factors.

How Would You Answer This Question?

What are some effective ways to determine in your prospect's home or place of business, if he needs humidification?

Answers based upon your experience, suitable, will be paid for and published in the May issue.

DOMESTIC ENGINEERING

Automatic Heat *and* Air Conditioning Section

MARCH, 1934

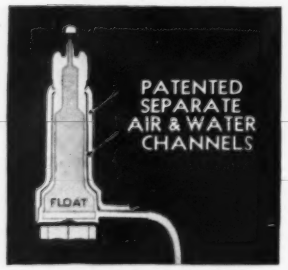
Our Industry Turns the Basement Into the Recreation Room

1900 PRAIRIE AVENUE
CHICAGO, ILLINOIS

HOFFMAN ALWAYS *first* ST.

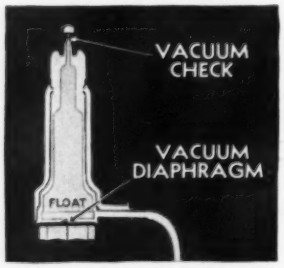
The entire history of Hoffman Valves is a record of achievement . . . of leadership in all things tending to improve efficiency and increase demand for the comforts and economies of vacuum heating. Look at this record . . .

DOUBLE SHELL



first with the patented exclusive Double Shell, which positively prohibits water leakage or water logging of the valve.

DOUBLE AIR LOCKS



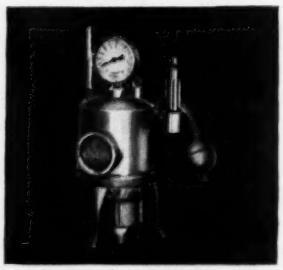
first with the patented, exclusive Double Air Locks, a device never improved upon for obtaining and holding maximum vacuums.

NATIONAL ADVERTISING

first with National Advertising, informing property owners everywhere of the merits of vacuum heating and hence stimulating your vacuum valve business.

first with the Vacuum Test, which demonstrates the vacumizing ability of the Hoffman Vacuum Valve to be all that is claimed for it.

VACUUM TEST

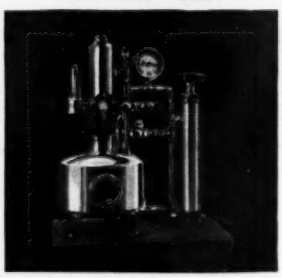


first with the handy-shape, triangular carton—an individual package for each valve, attractively designed for display purposes.

TRIANGULAR CARTON

first again—with the "Spitless" Test, proving conclusively that Hoffman Valves will not leak water nor waterlog under any conditions of service.

"SPITLESS" TEST

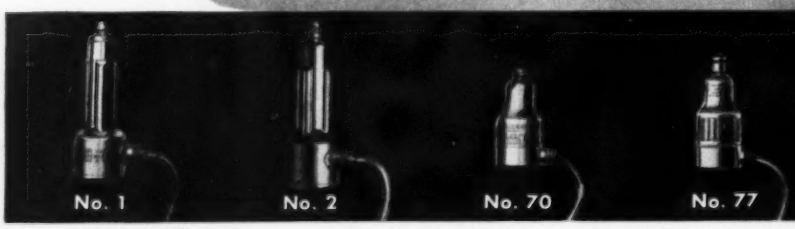


NRA Since Hoffman Quality costs no more, isn't it just good judgment to ally yourself with the leader?

Hoffman Valves are sold by leading wholesalers of plumbing and heating equipment everywhere.

Hoffman Specialty Company, Inc., Waterbury, Conn.

Also Makers of Hoffman Traps and Hoffman-Economy Pumps



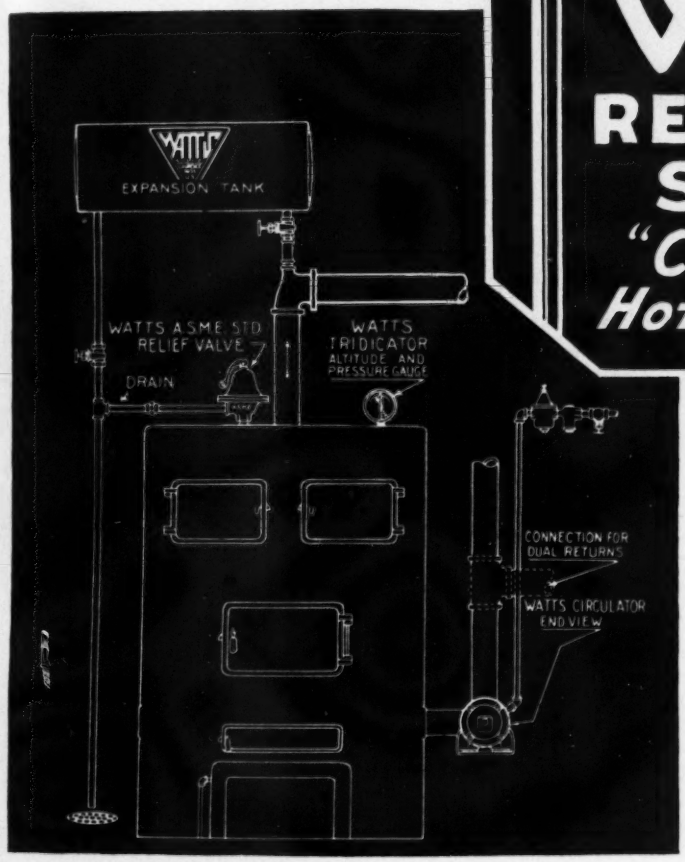
Hoffman Specialty Co., Inc.
Dept. RX-96, Waterbury, Conn.
Send me your latest bulletin on Hoffman Venting Valves ☐. Show me the Hoffman Vacuum and "Spitless" Tests ☐.

Name .....

Address .....

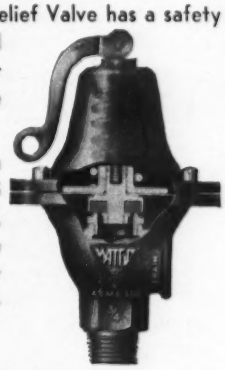
City .....

WATTS REGULATOR SYSTEM "Controlled Hot Water Heat"

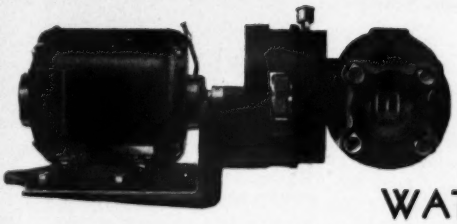


The Watts No. 500 Controlled Hot Water System is the ideal system for oil burner installations and is especially effective on summer and winter hot water systems.

The No. 55 Watts Relief Valve has a safety test lever and a monel diaphragm with over 7 sq. ins. of effective area.



The No. 500 System consists of a No. 55 Safety Relief Valve, Automatic Feed Valve and Strainer, Tridicator Gauge, Tank and Circulator.



WATTS CIRCULATOR

Is designed to give exactly the lift required for hot water jobs. No danger of short circuiting radiators or burning motor.

The balanced pressure impeller assures an even, steady water flow, avoiding water pulsation noises.

The motor is absolutely noiseless.

WATTS SAFETY FEEDER

Without changing piping or disturbing the installation, you can quickly and inexpensively make *six* different Feeder combinations with the Watts No. 60 Feeder.

For instance, if you have a *single*, gauge-glass type feeder and need a *dual* feeder, simply add an over-flow valve by removing one plug. If your job calls for a Low Water Cut-Off Switch, or a combination Low Water and Pressure Cut-Off Switch, all you do is add these features to your Single or Dual type Watts Feeder.

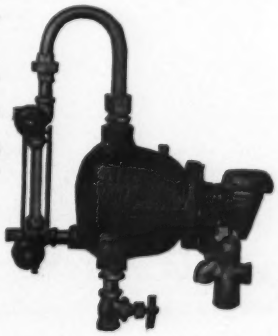
Every vital part can be reached for inspection or cleaning in less than three minutes, without disturbing the operation of the heating system.

Water cannot get under valve guide or into bellows.

There is little opportunity for transfer of heat to the feed valve or for the retention of heat in the valve, consequently no danger of scale forming.

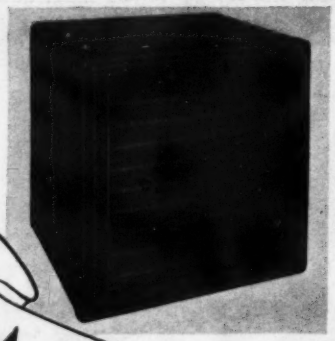
If there is not sufficient space to install in the regular hook-up, it is easy to swing feeder and goose-neck and use either of two side tappings in float chamber.

The EVERDUR steam seal bellows is hung in the center and perfectly balanced, so that it is not affected by pressure—no possibility of one part working harder than the other—no danger of stretching bellows beyond the point of elasticity. Other important features explained in our catalog. Write for a copy.

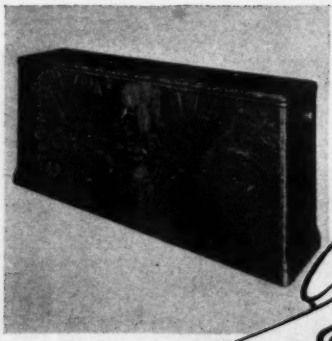


JOHN G. KELLY, INC., Distributors
210 East 45th St., New York, N. Y.

WATTS REGULATOR COMPANY, Lawrence, Mass.
Makers of Water and Steam Regulating Devices since 1874

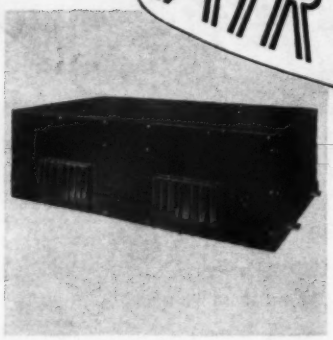


Suspended-Type Cooling Unit—for Summer use. Compact, efficient, powerful. To be suspended from the ceiling or connected to wall ducts.



Self-Contained Cooling Unit—for Summer use. This "package job" can be installed anywhere with ease, and removed during Winter.

Headed for AIR CONDITIONING Leadership



Supended-Type Comfort Unit—for all-season, heavy-duty Air Conditioning. To be suspended from the ceiling or connected to wall ducts.

SWIFTLY, surely — Servel is taking the lead in Air Conditioning.

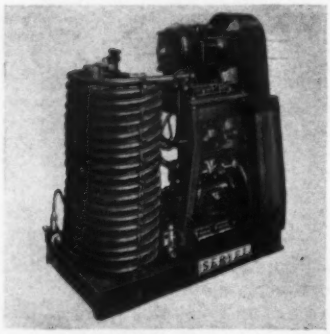
Why? Because Servel has actually matched the potentialities of this fastest-growing new giant industry with *advanced equipment for every need.* Because Servel's *aggressive sales program* assures volume and profits for those men who get into Air Conditioning now.

Look at the line! Floor and ceiling comfort units for year-round use! Self-contained room coolers! Massive new 7-ton and 10-ton compressor units!

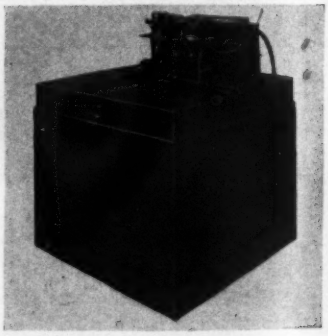
Plus — the world's foremost Commercial Refrigeration equipment, with a market *already established in your local territory.* Refrigerating machines for every capacity! Humidraft chilling units for triple-controlled refrigeration! Self-contained milk coolers! Water coolers! Beer bars!

Here's the line that's destined to make Air Conditioning history. Distributor and dealer franchises are still available in some cities. Wire or write today for details. Servel Sales, Inc., Evansville, Ind.

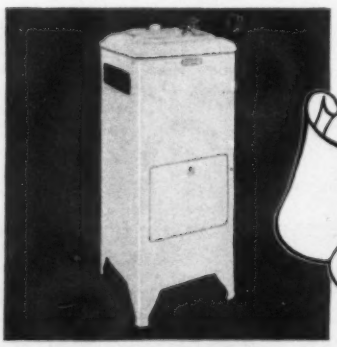
Floor-Type Comfort Unit—for the year-round control of the temperature, humidity, cleanliness, volume and distribution of air.



Refrigerating Machine Unit—one of the big multiple-ton models developed for Air Conditioning. Other units for every fractional-ton need.

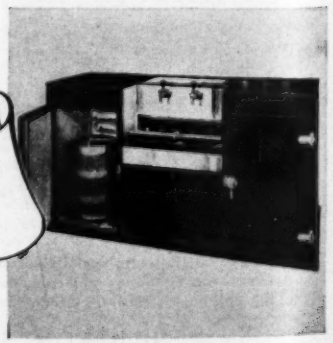


Self-Contained Milk Cooler—complete with refrigerating machine unit and cabinet. A low-priced feature for dairy territories.



Water Cooler—one of the efficient, self-contained models. Available in a wide variety of finishes, capacities and outlet fixtures.

*** True Air Conditioning does many things . . . cools and dehumidifies in Summer . . . heats and humidifies in Winter . . . circulates, filters, ventilates the year 'round. *Servel Air Conditioning is true, complete Air Conditioning.***



Self-Contained Draft Beer Bar—complete with refrigerating machine unit. Also compact bar inserts for modernising old fixtures.

SERVEL

Air Conditioning

AND COMMERCIAL REFRIGERATION

MANY SUCCESSFUL CONTRACTORS
specify *only*
GERSTEIN & COOPER TANKS

TANKS may look alike . . . may even be made of the same material . . . but experience soon shows contractors and users that there is a difference in tanks . . . the difference that distinguishes GERSTEIN & COOPER Guaranteed Rustproof Copper Tanks from ordinary tanks.

Factory tests have proven GERSTEIN & COOPER Guaranteed Copper Tanks will stand up in service many times more severe than their actual rating. Actual service performance has been so outstanding as to cause many successful contractors to specify on GERSTEIN & COOPER Guaranteed Copper Tanks, for every job, regardless of size.

For instance, in the Irving Trust Building in New York City is a tank, which we believe to be the highest pressure copper tank ever constructed for general use, designed in the GERSTEIN & COOPER factory by GERSTEIN & COOPER technicians.

Again, came from France a call for a Copper Tank to do service in Paris. With all of Europe to choose from, a GERSTEIN & COOPER Guaranteed Copper Tank was specified for the job.

Nationally known manufacturers of storage systems have standardized on GERSTEIN & COOPER Tanks, because from a range boiler of the smallest capacity to the one illustrated above, GERSTEIN & COOPER Guaranteed Copper Tanks are built of the finest quality that fine materials and expert workmanship can produce.

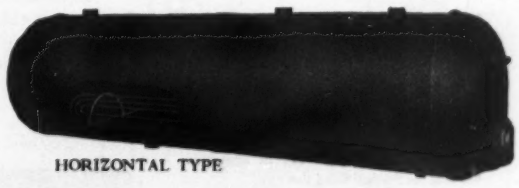
You can stake your reputation on GERSTEIN & COOPER Guaranteed Copper Tanks, because we do.

Write for descriptive literature of G&C Riveted Top and Bottom Copper Range Boiler.

GERSTEIN & COOPER CO.
1-3 West Third St., So. Boston, Mass.

Representatives

Gerstein & Cooper Co., Baltimore, Md.; Gerstein & Cooper, New York, N. Y.; Troop Water Heater Co., Pittsburgh, Pa.; Strong, Carlisle & Hammond Co., Cleveland, O.; Edw. Sinn, Harrison, N. J.



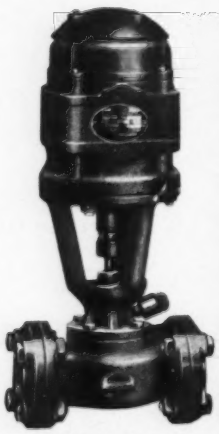
HORIZONTAL TYPE

GERSTEIN & COOPER COPPER TANKS

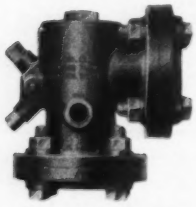
★ THRUSH FLOW CONTROL HOT WATER HEATING SYSTEM ●

★ ESSENTIAL EQUIPMENT

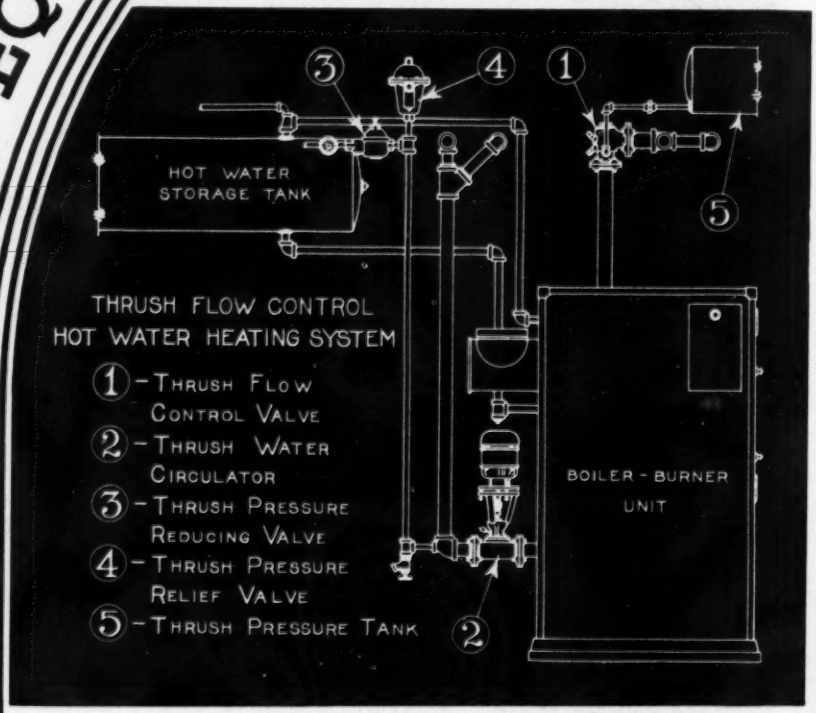
FOR YEAR 'ROUND OPERATION OF THE MODERN BOILER-BURNER UNIT!



Thrush Water Circulator



Thrush Flow Control Valve (Patented)



EVERY Boiler-Burner Unit Hot Water Heating installation intended for year around operation of burner to provide Heat and Domestic Hot Water Supply in winter *and to continue the burner operation for Domestic Hot Water Supply in summer* should have Thrush Flow Control as standard equipment. Operation is fully automatic. The Domestic Hot Water Supply is really hot—and circulation through the Heating System is *automatically* cut off in summer and whenever heat is not needed.

Thrush Flow Control Heating System *completely controls the physical distribution of the heating medium.* It can be installed on old or new jobs easily and inexpensively. It not only cuts down the running time of the burner by avoiding heat losses and preventing needless circulation through the system when heat is not needed—but when heat *is* needed, forced circulating hot water reaches every radiator in every room instantly.

This is the simplest and surest method of control yet developed. *Use the coupon to ask for our new booklet now.*

★ FORCED CIRCULATION ASSURES GREATER EFFICIENCY

MAIL THIS COUPON!

H. A. Thrush & Co., Box 459, Peru, Ind.

Please send booklet describing Thrush Flow Control Heating System and its advantages for use with mechanical firing devices.

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H. A. THRUSH & CO.
PERU, INDIANA.

Burnham Oil-Burning Boilers

THIS

Built-in Oil Burning *Burnham*

TAKES ANY STANDARD

Oil Burner

FOR the first time, here is a boiler into which you can build-in, any of the standard oil burners. "Build-in," mind you. Not "hitch-up."

Everything is *inside* the Burnham Boiler. Inside out of sight and completely out of the way.

You say it can't be done. But it is done, and Burnham did it.

It has all the desirable built-in features of any oil burning boiler. Has them all besides some none of them have.

Send for particulars. Get the low-down on this built-in oil burning Burnham.

Burnham Boiler Corporation

IRVINGTON, NEW YORK

Representatives in all Principal Cities of the United States and Canada

Courtesy Due

WE gratefully appreciate the co-operation and assistance extended us by the following prominent oil burner manufacturers during the development of this new Burnham Oil Burning Boiler:

Century Engineering Corp.
Cleveland Steel Products Corp.
S. T. Johnson Co.
Kleen-Heat Inc.
Nu-Way Corporation
Petroleum Heat & Power Co.
Ray Burner Company
Reif-Rexoil Inc.
Timken Silent Automatic Co
Wayne Oil Burner Corp.
Williams Oil-O-Matic Heating Corp.

Master Kraft OIL BURNER

Now 5 Models

11 more Franchises Now Open in New England

After last year's sensational record of more than doubling our 1932 sales of Master Kraft Oil Burners, we are now ready to grant exclusive franchises to 11 more responsible dealers in New England.

The Master Kraft franchise is a live, go-getting proposition and the only dealers we can consider are those who will put into action the Master Kraft sales plan, which has already proved so successful.

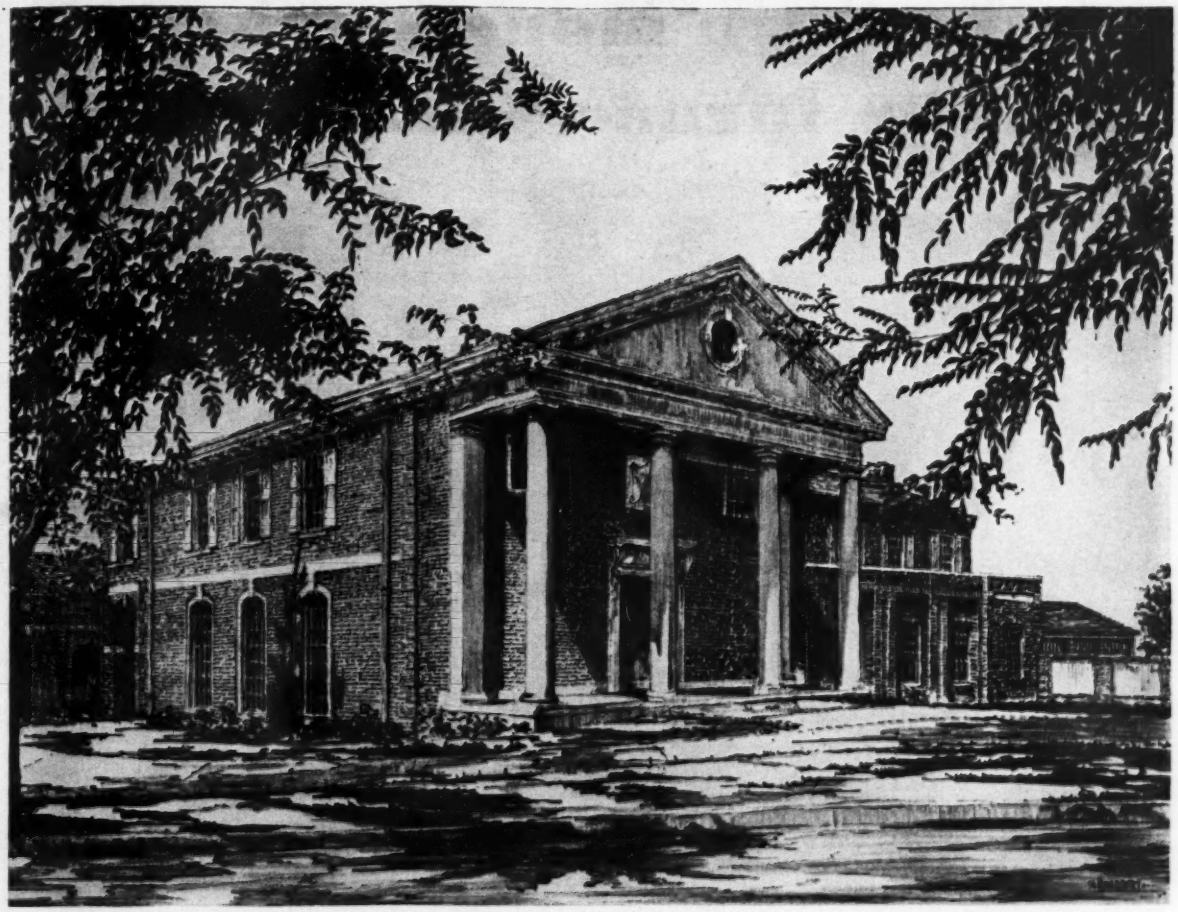
To the dealers who can qualify Master Kraft offers five high efficiency models which have definitely demonstrated their ability to reduce fuel bills. Unique advertising plan assures ample prospects. Highly developed "personalized" factory sales organization assures fullest co-operation on sales, installation, technical detail and service.

If you are *not* selling an oil burner now, this is the time to get lined up with one of the fastest growing organizations in the business. If you *are* selling a burner let Master Kraft show you how to step up sales and profits. Write us today for full details.

HARVEY-WHIPPLE INCORPORATED
57 Emery Street, Springfield, Massachusetts

Master Kraft OIL BURNER

"Pays for itself with Enduring Service and Savings."



Kingsport Utilities Co., Kingsport, Tenn. Allen N. Dryden, Architect; General Contractor, Fiske-Carter Co.; Air Conditioning Contractor, Cooling and Air Conditioning Corporation; Heating Contractor, Hynes Electric Co.

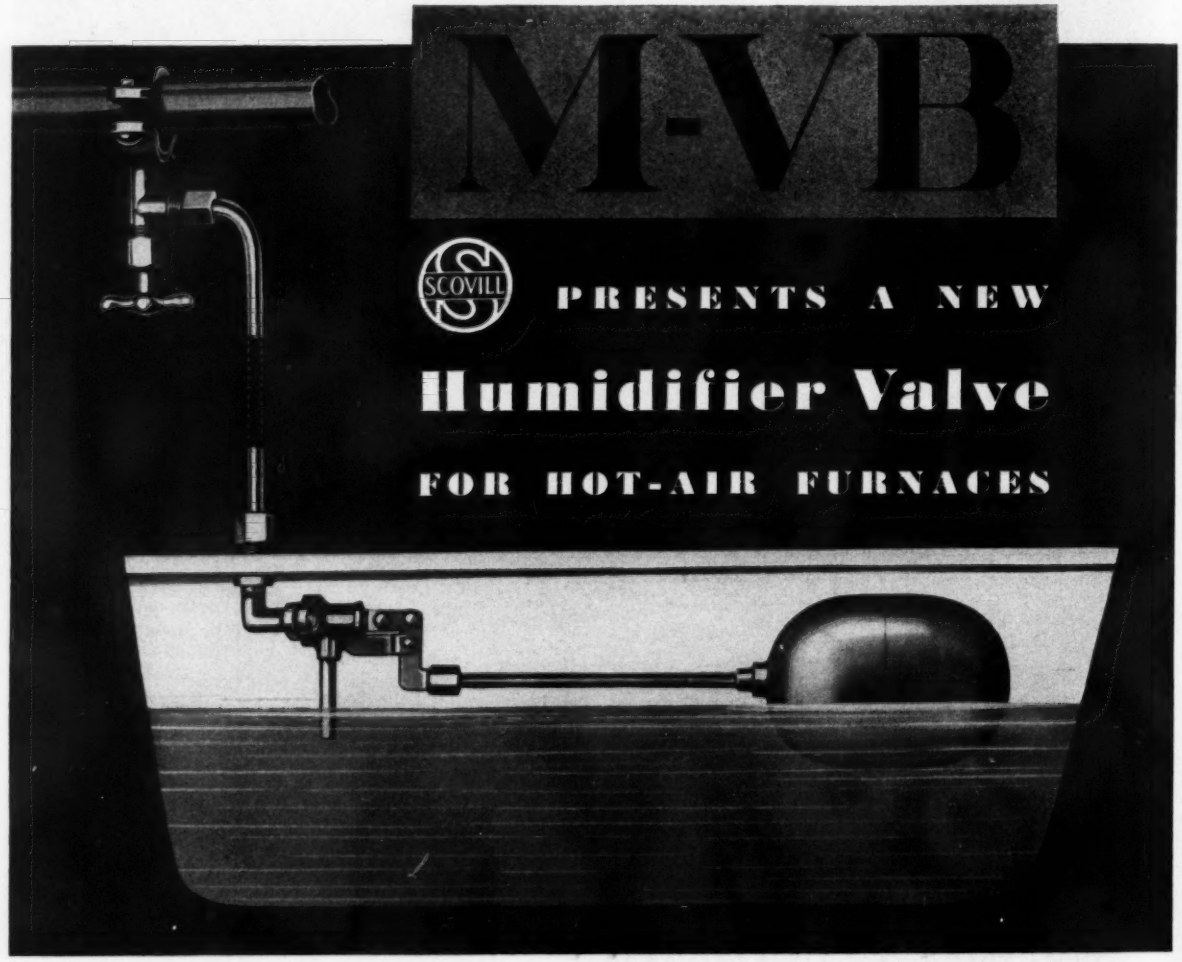
AMERICA'S FIRST ELECTRICALLY HEATED AIR CONDITIONING INSTALLATION

TO insure perfect operation the Minneapolis-Honeywell Modutrol System was selected to control the comfort cooling, heating and air conditioning in America's first electrically heated air conditioning installation. A properly balanced and co-ordinated system of controls regulates the electric strip heaters which preheat air before it is passed through the ventilating ducts, while in the summer months, a transfer switch enables fresh, cooled air to be circulated . . . The Modutrol System is suitable for comfort cooling, in old buildings or new, large or small. Every component unit is perfectly co-ordinated to furnish accurate and efficient control, under any condition. Consult the Minneapolis-Honeywell engineer to assist in selecting proper control equipment for your next job . . . Minneapolis-Honeywell Regulator Company, 2801 Fourth Avenue South, Minneapolis, Minnesota . . . Branch or distributing offices in all principal cities.

MINNEAPOLIS-HONEYWELL

Control Systems

An extra money-maker on your furnace-cleaning jobs



SPRING furnace-cleaning season is right around the corner. Time to clean up furnaces—*clean up profits*—by selling the M-VB Automatic-Float Humidifier Valve! Every one of your customers who has a hot-air furnace, with a hand-operated valve or no valve at all, is a prospect for this brand-new product.

Everybody knows that humidity control is healthful and cuts down heating costs. But few realize that the regular water pans on their hot-air furnaces can give satisfactory results. The trick is to hold the water constantly at the proper level. And that's what the M-VB Humidifier Valve does . . . *automatically, without attention.*

This valve goes right on the cover of the water pan, as shown in the illustration. Its moving parts can't corrode or stick because they're always clear of the water. Easy to install in half an hour even if the furnace is going. Just drill three holes in the water-pan cover to mount the float valve. One hole in a convenient pipe line to mount the strap valve. Both valves are connected by ¼-inch copper tubing, 10 feet of which are furnished with each unit. The whole thing comes to you in a neat box . . . complete with directions.

This new product has M-VB design, materials, workmanship throughout. In short, M-VB *quality*. Plumbing contractors, ask your jobber about it. Or write direct for free descriptive folder and full details.

NRA MEMBER WE DO OUR PART

MORENCY-VAN BUREN DIVISION
Scovill Manufacturing Company
STURGIS MICHIGAN

★OIL BURNER HEATING★

a brand new book containing information every man should know about oil burner heating

OIL BURNER HEATING discusses ways and means of overcoming difficulties from the sale of the job to the operating installation. Testing problems worked out show what should be done to test efficiency of installations, how to compare cost of oil or gas heating with coal, how to find heat losses, how combustion chambers are built, what to do when changing from gas installation to oil burner, how to figure oil consumption for year (a chart illustrates method), a practical example for testing heating installations, how to make bleeder connections when the headroom is low. All of these and many other problems are explained and illustrated with diagrams and charts, so that the book can be used by you on practically any oil burner installation.

For instance, in the first chapter of the book "HOW TO FIGURE COST OF HEATING WITH EITHER OIL, GAS OR COAL" is a comprehensive detailed description of fuel cost comparison which is the actual experience of a dealer who was called upon by a prospective oil burner buyer to explain the difference in cost, operating with each of these fuels. This chapter alone, with its valuable table on fuel costs will be worth many times the cost of the entire book. The Table of Contents gives you an idea of how thoroughly this book goes into its subject—how it takes oil burner heating with its many problems and difficulties and breaks it down into simple, understandable information which will be of assistance to everyone interested in oil burner heating.

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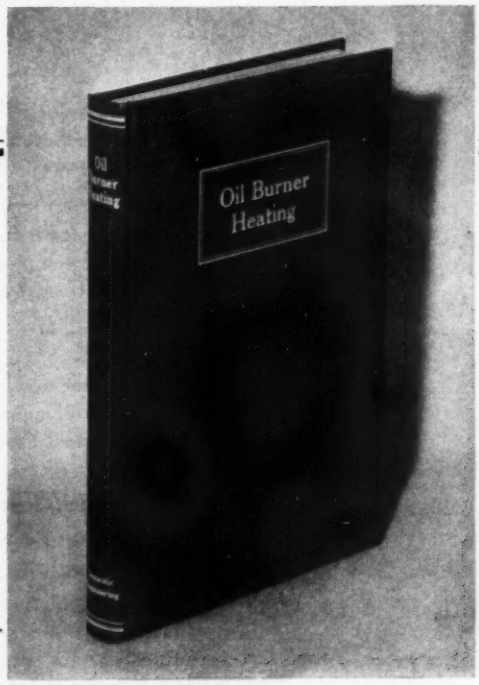

CAN YOU ANSWER THESE QUESTIONS?

What will the use of oil fuel cost in comparison with coal and gas?
Which oil is best to use?
What percent CO_2 can be reached in oil burning?
How do you figure oil consumption for year?
What is involved in question of oil burner efficiency?
What equipment do you use to test oil burner?
What is a direct heating surface in a boiler?
What is indirect heating surface in a boiler?
At what rate of output of boiler do you find maximum efficiency?
How do you find heat losses?
How are combustion chambers built?
How to change condition in underheated room?
How do you test all year operation of a heating plant in moderate weather?
How do you know if air supply is correct?

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DOMESTIC ENGINEERING
Automatic Heat and Air Conditioning Section

March, 1934

Over the First Hurdle

When the dealer in automatic heat and air conditioning equipment talks to a prospective customer today, one significant shift in public opinion is beginning to weigh more and more heavily in the dealer's favor.

The factor which is having an increasing influence on the side of the dealer is the growing dissatisfaction of the American home owner with the quality of his home mechanical services. It is a positive change which means much to the automatic heat and air conditioning dealer and equally to the manufacturer of those products.

Customers who are satisfied with what they have are not live prospects for something different. The appearance of a widespread sense of dissatisfaction with old style heating equipment is consequently one of the most promising signs for the future growth and assurance of his business which the dealer in modern types of such equipment has ever seen.

Honors for creating this modification in the attitude of the American public are probably shared about evenly between automatic heat and air conditioning.

The proved advantages of automatic heat have been tested out in hundreds of thousands of homes for enough years to convince the most skeptical. Then in the last several years, air conditioning has been in the foreground. It is universally discussed on the hot days of summer and is gaining recognition as describing the kind of home comfort we all want in winter time. Nation wide discussion of air conditioning has been successful in turning the thoughts of millions toward the advantage of newer and better home mechanical services.

This factor is tremendously important to our industry. The first obstacle to an order has been hurdled. The next step is easier.

Look up at the ceiling and an arrow points to the direction in which the wind is blowing; press a series of buttons and the temperatures in respective locations in the house and outdoors are registered; sit anywhere in the house and enjoy conditioned air. These are merely some of the features which typify

New Home of Maximum

By J. B. Lamb

THE air conditioning system in the Westinghouse experimental house, The Home of Tomorrow, just completed at Mansfield, Ohio, furnishes heating and humidification in winter, cooling in summer, and air cleaning. A steam boiler with an associated heat exchanger is installed. An experimental steam jet cooling system can be installed later if desired. It is planned to use a mechanical refrigeration system for cooling during the first season.

The house is an insulated, two-story, brick veneer, eight room building, approximately 32 ft., 9 in. wide by 39 ft., 6 in. long with two bath rooms, garage attached, and a flat roof upon which is built a sun room. The total cubical contents are approximately 24,200 cu. ft., 7700 cu. ft. in the basement, 9500 cu. ft. in the first floor, and 7100 cu. ft. in the second floor.

Based on 0 deg. Fahr. outside temperature and 70 deg. Fahr. inside temperature, the estimated requirements for heating the entire house are approximately 105,000 Btu. per hour.

The total cooling capacity required for the entire house is estimated to be 53,000 Btu. per hour for 15 degree

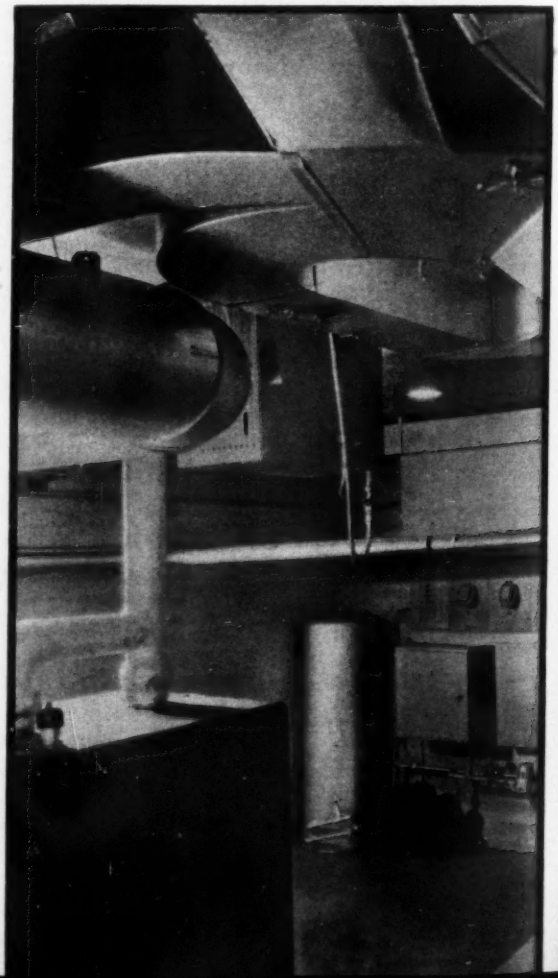


Fig. 1—In the circle above, the arrow points to indicate the direction in which the wind blows outside

Fig. 2—At the right, a partial view of the basement equipment showing the duct work and the oil fired heating boiler

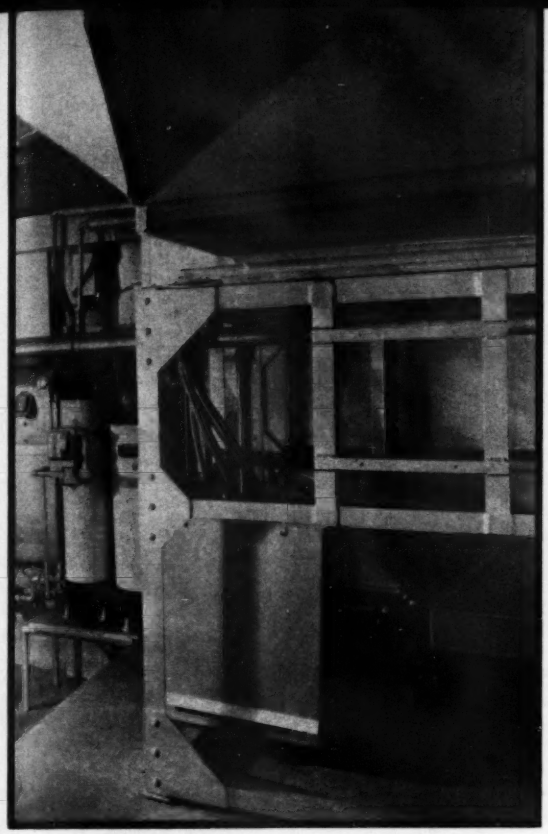


Fig. 3—Another view of the basement equipment in what is called the weather room. Air conditioning equipment is shown mainly here which should be viewed in connection with Fig. 2

standpoint of the power company supplying power to the residence, the starting and stopping of a 6 or 7½ horsepower motor would cause difficulties in voltage regulation and would also necessitate heavier wiring and transformer capacity as compared with the use of a smaller motor.

A steam jet system for furnishing complete cooling to the entire house would require a burner and boiler capacity much larger than that actually required to heat the house in winter. On the other hand, by installing the smaller cooling equipment, the boiler and burner used for heating the house in winter is more than ample in size for supplying steam to an experimental steam jet system with a 24,000 Btu. per hour cooling capacity.

A duct system distributes the conditioned air to the various rooms in the house. Since the cooling capacity is sufficient to completely cool only part of the house at a time, it is necessary to control definitely the flow of air to and from the rooms which are being cooled.

The entire duct system is divided into three supply and return sections. One supply and return duct section supplies air to the living room and dining room. A

Comfort and Convenience

cooling. The use of 1 in. of insulation in the walls, 2 in. of insulation in the roof, and double window glass accounts for the cooling load being smaller than usual for a house of this size.

Although the estimated cooling capacity required for cooling the entire house is 53,000 Btu. per hour, installed refrigeration equipment removes only 24,000 Btu. per hour and cools only part of the house at a time. The system is designed so that the cooling effect can be transferred from the living room and dining room to the three bedrooms at will, to furnish complete cooling for either of these two groups of rooms. The control also is arranged so that the entire house can be cooled as much as is possible with the limited refrigerating capacity available.

From the standpoint of the house owner, this type of cooling system has decided attractions as compared with the installation of a full capacity system capable of cooling the entire house. In the first place, it is very likely that a system of this type could be installed at a cost to the user of about half the cost, of a system capable of furnishing complete cooling to the entire house.

The smaller capacity equipment is also less expensive to operate than the larger capacity equipment, the cost for both power and cooling water being lower.

For full capacity cooling equipment in this particular residence, a 6 or 7½ horsepower motor would have been required instead of a 2½ horsepower motor. From the

An oil burner provides the automatic heat in this latest air conditioned residence

Fig. 4—In the circle at the right, the breakfast room with a conditioned air outlet in the ceiling

Fig. 5—At the left, an electrically warmed pent house is a unique feature of the home. This room is warmed by 36 electrical panels imbedded in the plaster of the walls

Fig. 6—Below, all that is necessary to transfer the air conditioning equipment from warmth to coolness is to throw the control handle shown

second section of ducts supplies air to the three bedrooms. A third section of ducts includes supply and return ducts for the rest of the house.

Return ducts are taken from all of the rooms which it is desired to cool completely, that is, from the bedrooms, living room, and the dining room. The other return ducts are run from the halls and carry air from the rest of the house.

SUPPLY AND RETURN DUCTS

The three supply and return-duct sections come together at a common point in the basement so that all of the air is passed through the air conditioning unit. Six electrically operated dampers are used to open and close the three supply and three return ducts as required.

A steam boiler, together with a rotary wall flame type oil burner, furnishes steam to the heat exchanger of the air conditioning unit. The oil burner control is arranged with a pressure regulator so that a constant steam pressure is maintained in the boiler.

The air conditioning unit includes steam heating coils, a humidifier, cooling coils, a motor driven blower, and an air filter.

The supply of steam to the heating coils is controlled by a steam regulating valve with two control bulbs. One bulb is located in the air stream leaving the air conditioning unit. The other bulb is located at the entrance of the duct provided for bringing in outside make-up air. The two steam control bulbs are adjusted so that as the outside temperature decreases, the temperature of the air leaving the air conditioning unit is increased by the admission of more steam to the heating coils. This arrangement is to prevent overheating of the house in mild weather and to insure that warmer air will be supplied to the house in cold weather when most required.

The fan motor is arranged so that it can operate at both a high speed and a low speed during the heating season. At the low speed, the fan operates so as to force just enough air through the duct system and

through the house to prevent the occurrence of stagnant or hot and cold spots. At the high speed, the fan forces enough air through the duct system to more than meet the full heating requirements, thus providing ready response. In operation, the fan operates continuously during the heating season. When the heating thermostat in the hall demands heat, its contact closes, causing the fan to operate at the high speed and forcing a large volume of warm air through the house until the temperature has risen sufficiently to open the thermostat contacts. The fan then operates at the low speed again. Control of the house temperature thus is entirely automatic.

The humidifying equipment consists of a number of spray nozzles which direct small streams of water against targets. It is controlled by a magnetic valve and humidistat. The humidistat is located in the hall of the house so that the relative humidity can be regu-

lated to any desired value. The humidistat operates by opening or closing the circuit to the humidifier water valve.

A filter of the glass wool type is provided in the air conditioning unit for cleaning all of the air supplied to the house, and is arranged so that it may be renewed easily when it has accumulated sufficient dirt.

AUTOMATIC TEMPERATURE CONTROL

For automatic control of the house temperature, three thermostats are provided, two cooling thermostats and one heating thermostat. The heating thermostat is located in the hall. One of the cooling thermostats is located in the living room and the other cooling thermostat is located in the main bedroom. These three thermostats are provided with remote control bulbs which are located in the recirculated air ducts. With this arrangement the temperature of the air in the recirculated air ducts actually controls the opening and closing of the thermostat contacts. However, any desired adjustment of the thermostat settings can be made easily at the locations mentioned. It is believed that the temperature of the air in the recirculated air ducts is more representative of the average air temperatures in a number of rooms than the temperatures at any one spot on the wall in any one of the rooms.

The operation of the control for the air conditioning system is relatively simple. A small control switch with a position indicating dial is located in the basement. For heating, this switch is turned to the winter heating position. The electrically operated dampers in the ducts then operate to open all of the supply and return ducts thus supplying air to all of the house, the oil burner automatically starts up so that the boiler will supply a constant steam pressure to the regulating steam valve and steam heating coils, and the fan of the air conditioning unit operates at either a high or low speed to supply warm air to the house in response to the action of the heating thermostat located in the hall.

For cooling part of the house in the summer time, the control switch in the basement is turned to the second position. This operates to shut down the heating equipment and places the cooling equipment under the control of one of the two cooling control stations upstairs. A two-position selector switch is located in the hall. The position of this selector switch determines whether the cooling equipment is to cool the living room and dining room or whether it is to cool the three bedrooms.

If the hall selector switch is in the living room position then the electrically operated dampers operate to shut off all air to the other rooms in the house and to supply air to the living room and dining room. The fan of the air conditioning unit and the compressor motor of the condensing unit both are controlled by switches located near the living room thermostat. The thermostat operates to start and stop the compressor. The control is arranged so that the fan can be used without refrigeration to give simply air circulation to and from the living room and dining room, or to give both air circulation and cooling whichever is desired. This control is accomplished entirely by the thermostat and two tumbler switches in the living room.

If the hall selector switch is in the bedroom position, then the electrically operated dampers operate to shut off all air to the rest of the house except the three bedrooms, and the control of the fan and refrigerating equipment is transferred to the bedroom control station which is of the same type, and functions in the same manner as the living room control switches and thermostat.

In case it is desired to cool all of the house, as much as the limited capacity of the refrigerating equipment will permit, then the control switch in the basement is

(Continued on Page 110)

Fig. 7—The air conditioning in this home prevents the books and woodwork from drying out and makes the fireplace merely an ornament

How to Install Oil Burners

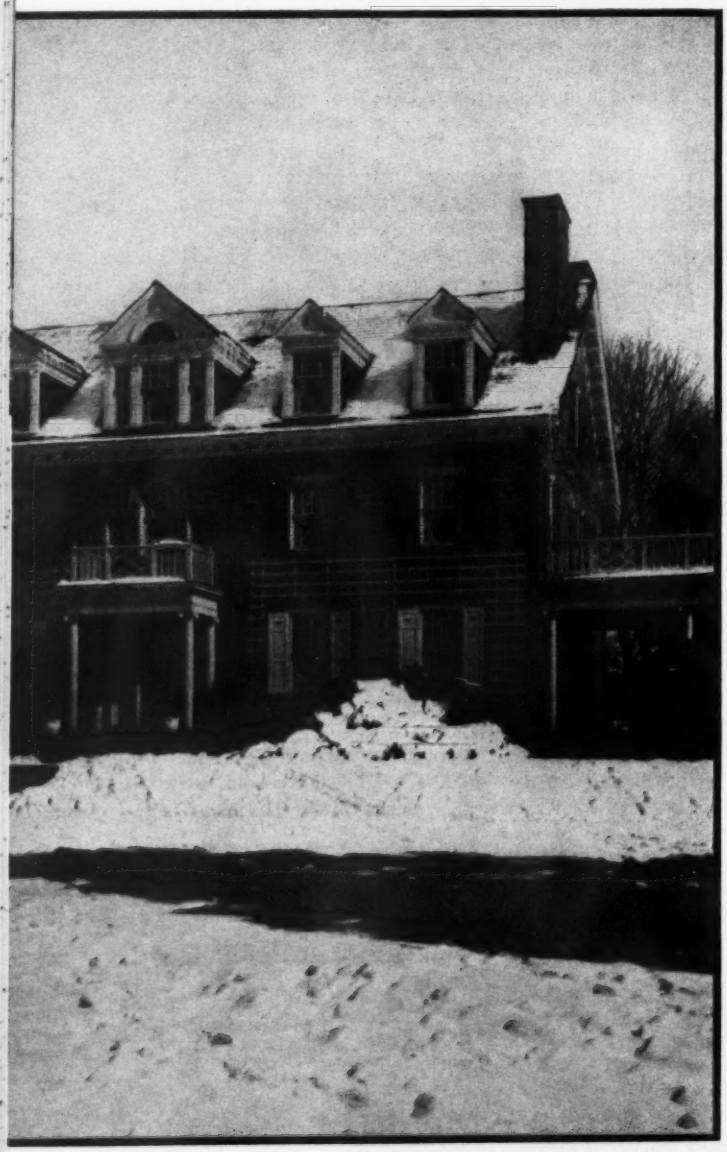


Fig. 1—This is the exterior of the building described in this article in which the gas designed and gas fired equipment was changed over to oil

When heating installations which originally have been designed to burn gas, are converted to burn oil, certain definite changes and provisions must be made. This article describes a specific job in telling of the practices of Trilling and Montague of Philadelphia.

By C. W. WHITNEY

THE accompanying photographs show a typical successful installation of oil burning equipment under a gas designed boiler. This installation has been in operation for one and one-half seasons now. One service call was made the first season and none so far the second season which is over 50 per cent advanced.

Refer to Fig. 3 and we will proceed to show how this installation was made and why it is satisfactory.

The combustion chamber is by far the most important part of the whole installation. If it is not proportioned correctly and constructed of the proper materials and in the proper manner, trouble is sure to develop.

If the following simple rules are observed, serious mistakes will not occur.

(1) Measure the boiler and determine the maximum length and breadth available for the combustion chamber.

(2) Measure the actual connected heating load on the boiler including pipes and risers.

(3) From the heating load determine the number of gallons of oil to be fired per hour. (Any set of burner specifications.)

(4) Be sure to select the proper size of burner.

(5) Calculate 2 to 2½ cu. ft. of combustion space for each gallon of oil fired per hour.

(6) From this cubical content calculate the height of combustion chamber. The length and breadth are already available. With the cubical content, the height is easily found. Don't be stingy with the size of the combustion chamber.

(7) Proceed to build the combustion chamber as shown in Fig. 3 and install the burner.

(8) Set with a clean flame, burn a good grade of oil, seal the boiler doors.

The above method of figuring the combustion chamber volume is by no means a hard and fast rule. There are several ways of calculating the combustion chamber volume but a good installation layout man can easily follow the above. After two or three installations of this kind have been made, the service man will get the "feel" of a conversion from gas to oil and will know exactly what to do.

Sometimes calculations of this kind will come out to an exaggerated figure because the boiler may be too small for the residence or the amount of radiation may be too small for the boiler so that the calculations may come

Under Gas Designed Boilers

out showing that the combustion chamber should be five feet deep or some exaggerated figure of this kind. However, the judgment of the installation man will have to be used in such cases and, in general, the combustion chamber should never be less than 15 in. to 20 in. deep under any conditions.

Figures from the actual installation shown in photographs are as follows:

Available combustion chamber length 42 in. = 3½ ft.
Available combustion chamber width 36 in. = 3 ft.
Actual connected hot water load, 4,720 sq. ft.
(Direct-Indirect)
Gallons of oil to be fired per hr. for load, 8 gallons.
Cu. ft. combustion space required, 20 cu. ft.
Calculate Depth
3½ ft. × 3 ft. × "X" = 20 cu. ft.
"X" = 1.905 ft. or 22.9 in. depth of combustion chamber.

We made this combustion chamber 24 in. deep from the LOWEST point of the boiler sections to the bottom of the refractory bowl, as shown in Fig. 3 so that we actually have somewhat better than 20 cu. ft. combustion space in this combustion chamber.

Referring again to Fig. 3, aside from the technical questions involved in an application of this kind, the practical installation and setting of the burner are highly important. Under No. 1 in Fig. 3, we have shown the combustion chamber walls built of a special brick. This material has only one-sixth the heat transmission quality of ordinary fire brick and acts both as an insulator and a refractory. It is not supposed to be a refractory but it has been found to serve the purpose very well in the type of installation which we are describing. We have found that when this material is used, the outside casing of the gas boiler gets no warmer than when the gas fire was being used.

At the top row of brick allow ⅛ in. for expansion per foot. Fill in this space with a softer cementing material. If the top row of brick is laid so that they touch the lower sections of the boiler, they will more than likely crack when the oil flame is applied due to expansion. See item No. 3, Fig. 3.

About 3 ft. away from the boiler, cut a trench under the cellar floor about 8 in. by 8 in., using this as the cold air duct to the pit and to the burner. Place a suitable cover over the front end of the pit with a neat handle for lifting and line it underneath with thick asbestos. See Fig. 3, items Nos. 4, 5, 6 and 8. This construction practically stops all noise from the pit.

The other items on the sketch all are self-explanatory. We set the burner centrally under the boiler. The flame spreads out flat, closely simulating the gas flame, and operates without smoke or odor. Show the user some of these fine details of construction and he will become an enthusiastic booster, starting up a regular train of sales.

Fig. 2—A construction view with the oil burner in place and in operation. It shows clearly how the pit was made. The air intake is at the rear as indicated by the diagram Fig. 3

The pit in all cases should be water-proofed with suitable water-proofing material so as to preclude all possibility of water seepage into the pit.

If a smaller boiler is encountered, say 20 in. by 20 in. square or 18 in. by 25 in., or within the range of these dimensions, the boiler can be removed from its setting while preparing the pit. In a case of this kind, first dig the pit and have a steel box fabricated which will fit

down into the pit and extend several inches above the floor line of the cellar. The boiler can then be replaced over the steel box and this will preclude all chance of water leaking into the pit, provided, of course, a tight seal is made where the steel pit extends above the floor line of the cellar. In the case of a large boiler, the cost of moving the boiler is too great for this type of construction.

It can be seen at a glance that the arrangement of passes in the gas boiler is going to lend itself to high efficiency. Carry out the practical application as well as the theoretical application and your user will be well satisfied. Above all things, sell your customer properly.

As a matter of interest, in our calculations we checked

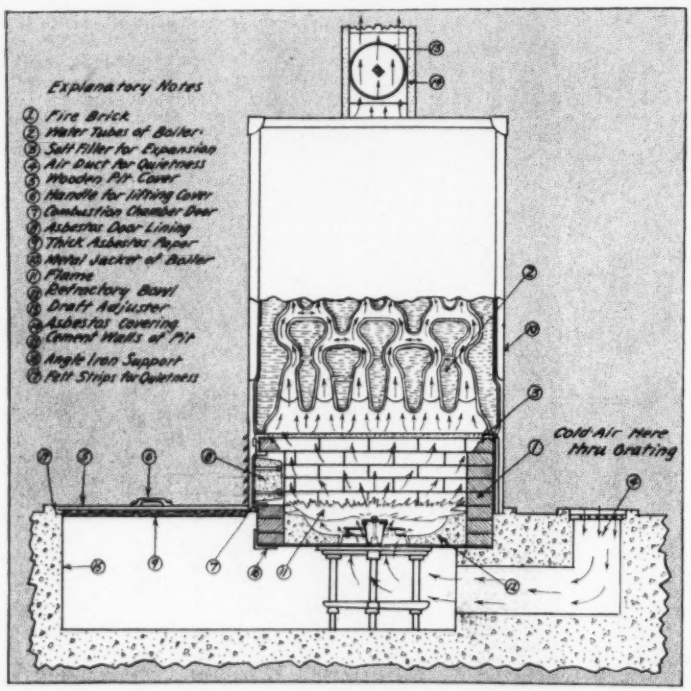

Explanatory Notes
1. Fire Brick
2. Water Tubes of Boiler
3. Soft Filler for Expansion
4. Air Duct for Quietness
5. Wooden Pit Cover
6. Handle for lifting Cover
7. Combustion Chamber Door
8. Asbestos Door Lining
9. Thick Asbestos Paper
10. Metal Jacket of Boiler
11. Flame
12. Refractory Bowl
13. Draft Adjuster
14. Asbestos Covering
15. Cement Walls of Pit
16. Angle Iron Support
17. Felt Strips for Quietness
Cold Air Here Thru Grating

Fig. 3—Here is a cross section diagram of the converted gas job shown in Fig. 2. The explanatory notes and the numbers tell of the different features

the owner's gas bills against the degree-day charts for the area in which the burner operated and found the following comparison.

Month	Degree-Days for Operating Area	Degree-Days Percentage by Months	Percentage by Months Average of Two Seasons with Automatic Gas Heat	Difference
Oct.	242	4.9%	6.2%	+ 1.3%
Nov.	588	12.1%	11.2%	— .9%
Dec.	903	18.6%	21.2%	+ 2.6%
Jan.	1001	20.8%	14.7%	— 6.1%
Feb.	895	18.4%	16.5%	— 1.9%
Mar.	756	15.5%	17.5%	+ 2.0%
April	402	8.3%	9.9%	+ 1.6%
May	68	1.4%	2.8%	+ 1.4%
	4855	100.0%	100.0%	00.0%

These figures show very plainly how actual figures encountered in any one month can vary from the degree-days which is an average over long years of time. If you try to use any one month's actual fuel bill and call this a certain percentage of the total as selected from the degree-days figures, you may be away off in your final calculations.

A portion of the calculations made before the oil burner was installed follow:

Gas used in this case contained 525 Btu. per cubic foot.

Gas contained 525,000 Btu. per 1,000 cu. ft.

No. 2 fuel oil recommended contains 140,000 Btu. per Gal.

525,000 ÷ 140,000 = 3.7 Gal. oil equivalent to 1,000 cu. ft. gas.

Knowing the number of cubic feet of gas consumed in past seasons, from the gas bills, we figured the number of gallons of oil which would be consumed and estimated the oil bill between $650.00 and $700.00.

Now comes the interesting part of the figures. At the end of the heating season, we checked the oil deliveries and the amount remaining in the tank and found the following:

Date of Delivery	Gallons Delivered
Sept. 28th	1500
Dec. 3rd	1800
Dec. 28th	1500
Jan. 20th	1200
Feb. 15th	1000
Mar. 25th	1500
April 26th	1800
Total Deliveries	10,300
Remaining in Tank (Approximately)	500
Season Consumption	9,800

Gal. @ 6c = $588.00

This season might have been slightly milder than average but the actual oil bill was under the estimated oil bill by $50.00 to $100.00. Besides, this, he used heated parts of the house that he never heated before with gas and also kept the thermostat 2 degrees higher with oil than with gas. The reason we think the oil bill came out so low was because we set the burner with a full flame and the user had been in the habit of shutting off several gas burners, thinking he was saving gas. Probably his net firing period was much longer with gas than with oil. The oil burner probably heated the water much faster and the thermostat shut the burner off quicker, resulting in increased efficiency.

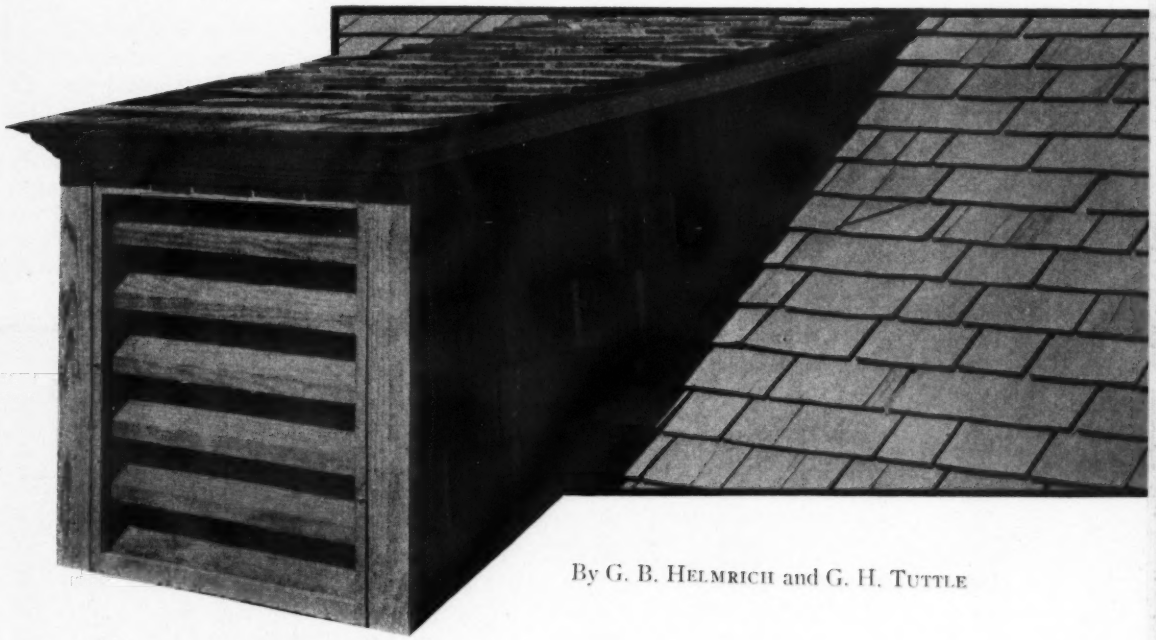
Taking figures from the original survey of the installation and actual figures of performance, we have the following authentic figures on which to base other estimates:

Actual connected H.W. load including pipes and risers, 4720 sq. ft. (plus 20% Standing Radiation).

Gallons oil used per season, 9800.

Gallons oil per sq. ft. Hot Water, 2.07 Gal.

(Continued on Page 106)



Dormer window with an open louvre having a fan inside for exhausting hot air. Although this and the accompanying photographs represent typical jobs, they are not the ones referred to in text

By G. B. Helmrich and G. H. Tuttle

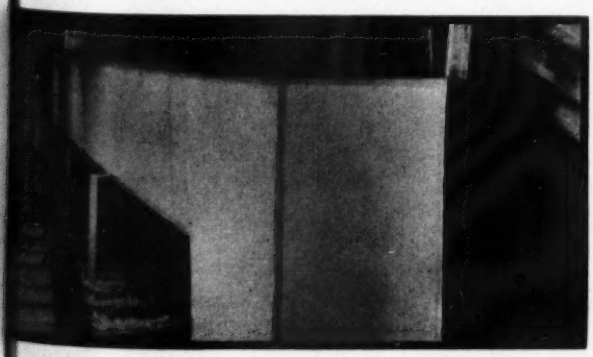
Attic Ventilation

How comfort cooling is brought about by the use of exhaust fans installed to remove the hot air from the upper parts of homes in summer weather

THE costs of cooling installations which have sufficient capacity to cool artificially, a moderate-sized residence are still high enough to restrict their use to a comparatively few people, while the desire for more comfortable conditions in the home during the hot summer season is almost universal. If a simple and relatively inexpensive means can be made commercially available, whereby at least the sleeping rooms may be made more comfortable at night, there unquestionably would be a broad market for such equipment.

This suggests the development of a method by which the outdoor air can be drawn through the rooms at such times as the temperatures are lower than those indoors. A study of the summer temperature records for Detroit shows that, almost invariably, the outdoor temperature drops below the inside temperature at around 7 to 8 p.m., and stays below for approximately 12 hours. The attic ventilating fan seemed to give such promise as a means of accomplishing this purpose that three types of residential installations were made during the past year and a half and considerable experience has been gained with their operation.

In addition to providing more comfortable conditions for the second floor of the home, it was felt that an attic fan could be used to pull air through the first floor rooms during the early evening and thereby accomplish an appreciable improvement to the inside air condition usually existing after a hot summer day. It is then just one step further to install an attic fan of sufficient capacity to pull a large volume of air through both the



This photograph at the left shows another typical attic ventilation installation with duct work running to the outside house wall

Presented at the 40th Annual Meeting of the American Society of Heating and Ventilating Engineers, New York, N. Y., February, 1934.

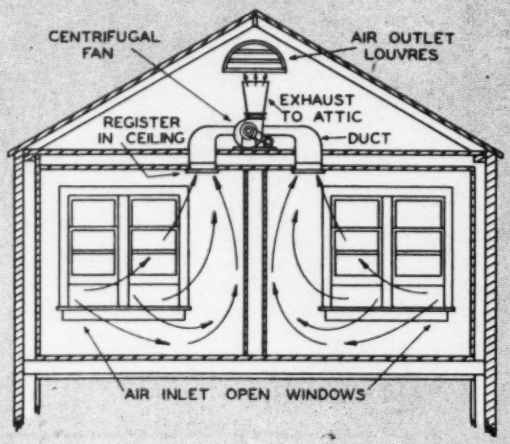


Fig. 1—Centrifugal multi-blade fan installed with exhaust ducts

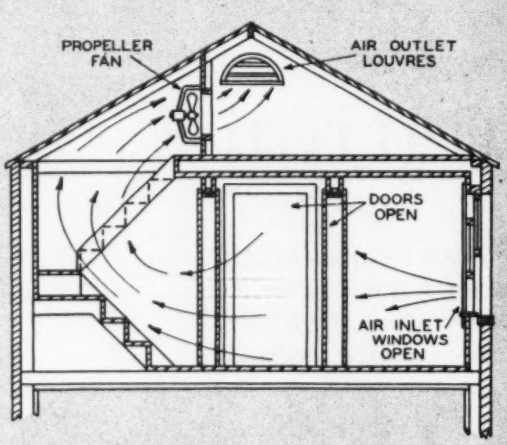


Fig. 2—Propeller fan installed in attic stair well

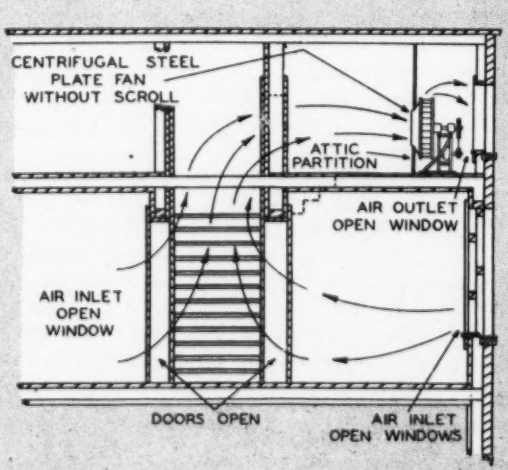


Fig. 3—Centrifugal curved blade steel plate fan installed without scroll

first and second floor rooms and so cool down the building structure during the night that, with no artificial cooling during the following day, the conditions will be tolerable. It was with the thought that the attic ventilating fan might serve in many residences, where a moderate improvement to comfort would be most welcome, that this experimental work was undertaken.

The installations made in the Detroit residences were of three distinct types. One was a standard commercial propeller fan, the second a centrifugal multi-blade fan,

Hot air is removed from this building by means of roof fans drawing air through grille shown in the facing photo

and the third a centrifugal, steel plate, curved blade fan, installed without a scroll. The essential requirements for cooling systems of this kind are quietness of operation and low first cost. Fan efficiency is unimportant because of the comparatively short season of use.

Centrifugal Fan: A multi-blade centrifugal fan was installed in the attic space of an eight room house of brick and stucco construction. The suction side of the fan was connected to exhaust ducts leading to grilles placed in the ceilings of two bedrooms, the air being drawn through the open bedroom windows and discharged into the attic space where it flowed to the outdoors through louvres placed in the gables. The general arrangement is shown in Fig. 1 and the principal data for the installation are shown in Table 1.

TYPES OF INSTALLATION MADE

Propeller Fan: A 10-blade propeller fan of the disc type was installed at the head of the attic stairway of a six room house of ordinary frame construction. The fan was mounted over the attic stair well in such a manner that the entire attic stairway is placed under suction. The air is drawn through the open windows of the three bedrooms into a central hallway, and thence up the attic stairs where it is discharged into the attic space and allowed to find its way to the outdoors through open windows placed at either end of the attic. The general arrangement is shown in Fig. 2 and the installation data are given in Table 1.

Centrifugal Steel Plate Fan: A rather unique fan assembly was devised as shown in Fig. 3. It consists of a single inlet, backward curved blade, steel plate type, centrifugal fan wheel, mounted on a light angle iron

frame which supports the fan wheel, shaft, two bearings, V belt drive, and motor. No fan scroll was used and the inlet was placed close to a circular opening cut in a plaster board partition which served to divide a small attic space into a suction and discharge chamber. As in the case of the propeller fan installation, air is drawn up the attic stairway, into the fan wheel, and discharged freely from the blades into a small attic space, from whence it flows through open attic windows to the outdoors.

This shows the ceiling grille for removing the hot air which collects in the upper corridor of the building at the left

The installation data for this fan are also to be found in Table 1.

The operating experience gained with these three installations during this past summer has shed considerable light on the possibility of popularizing this type of comfort cooling, and the data and experience will be discussed in the order in which the installations have just been described.

Centrifugal Attic Ventilating Fan: The centrifugal fan illustrated in Fig. 1 was operated about 150 hours during the past summer, and the occupants of the house were well pleased with the results obtained. The temperatures in the two bed rooms to which the fan is connected were very responsive to the action of the fan, and the characteristic temperature curve for the larger of the two rooms is shown in Fig. 4. It will be seen that the inside temperature can be made to follow the declining outdoor temperature curve very closely, the temperature at midnight being only about two degrees above that for the outdoors. This is in contrast to the conditions obtaining when the fan was not used, as the curves show the indoor temperature to be at least eight degrees higher than the outdoor at midnight, and additional temperature records show this difference to have been as high as twelve degrees on some occasions.

Anemometer readings taken at the ceiling grille showed an air velocity of about 330 f.p.m., corresponding to 1294 c.f.m. passing through this room. As the volume of the bedroom was 2180 cu. ft., this rate of air flow provided about 36 changes of air per hour. With a total air flow of 2754 c.f.m. through the fan, the static pressure of the fan was 0.10 in. water.

EFFICIENCY OF COOLING

The efficiency of cooling[1] at this rate of air change is shown in Fig. 5. The indoor and outdoor temperature drop has been plotted at one hour intervals between the point at which the two temperature curves cross and the point at which the drop is a maximum; the latter being the point at which the actual temperatures reach their minimum value. These data were taken from Fig. 4 for the evening of June 27. It is evident that sufficient outdoor air was being drawn through the bed room to make the indoor temperature drop quite uniformly with the outdoor, with a differential between the two temperatures of about two degrees. On the previous night, the night of June 26, the fan was not operated, and natural ventilation was depended upon to reduce the inside temperature. The curve for natural ventilation, shown in Fig. 5, indicates a very slow drop in indoor temperature in the early evening hours, when interpreted in terms of the actual temperature curves for June 26 as they appear in Fig. 4. Since the actual maximum drop in indoor temperature was less than half as great as that for the outdoor, and also less than half as much as the drop in inside temperature on the succeeding night when the fan was used, it seems fair to conclude that, in this installation at least, natural ventilation is only about half as effective in reducing inside temperatures as is the case with fan ventilation.

[1]Calculated as suggested by Prof. A. P. Kratz and S. Konzo, Engrg. Exp. Station, University of Illinois.

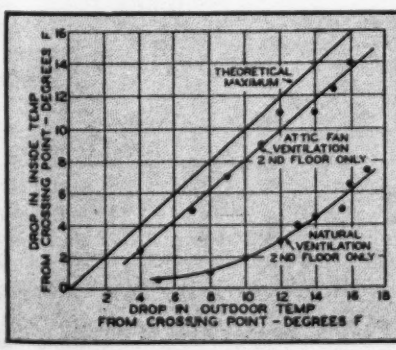

DROP IN INSIDE TEMP FROM CROSSING POINT - DEGREES F
THEORETICAL MAXIMUM
ATTIC FAN VENTILATION 2ND FLOOR ONLY
NATURAL VENTILATION 2ND FLOOR ONLY
DROP IN OUTDOOR TEMP FROM CROSSING POINT - DEGREES F

Fig. 4—Relation between inside and outside temperature drop following the point at which the temperatures coincide

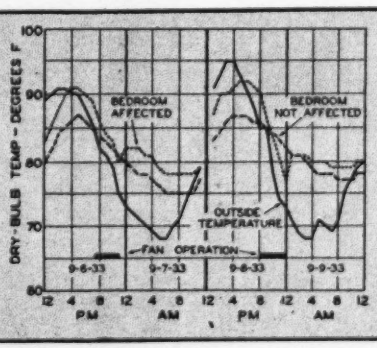


Fig. 5—Comparative temperatures in two similar bedrooms, one affected and the other not affected by attic ventilation

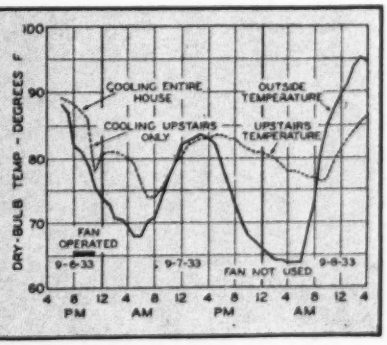


Fig. 6—Chart showing the effect of the propeller attic fan ventilation upon upstairs temperatures

In summer, the heated air in this building is exhausted through the opening seen in the attic gable. The lower view shows the ceiling outlet for this job

This contrast is even more striking if consideration is given to the fact that, on the night the fan was used, both the day and night outdoor temperatures were considerably higher than obtained on the previous night when natural ventilation was employed. It should be pointed out, however, that in this installation, there was no opening into the attic, except through the ceiling grille, exhaust duct, and fan, so that natural ventilation was not aided by the stack effect of the structure, whatever real value that may have. The temperature records alone do not indicate the entire cooling effect produced. There was also a very noticeable air movement set up which decidedly augmented the temperature reduction.

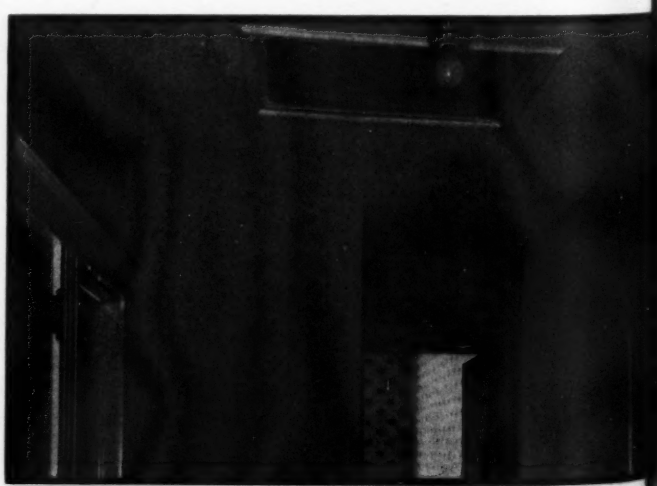
EFFECTIVENESS OF FAN COOLING

Another illustration of the effectiveness of this fan is the comparison of bed room temperatures affected by the fan with the temperatures of another bed room not connected to the fan. This comparison is shown in Fig. 6. The unventilated bed room has a northeast exposure while the ventilated bed room has a northwest exposure. It will be seen that the temperature curve for the ventilated bed room drops below the curve for the unventilated room, even though in both cases it starts from a much higher maximum.

Although the occupants of the room reported that the diffusion of the air drawn through it was quite satisfactory, it was decided to check this diffusion by moving the thermometer to various parts of the room on succeeding nights. The thermometer was located in the position shown in Fig. 7 when the temperatures were recorded which are shown in Fig. 6. When the temperatures shown in Fig. 4 were recorded, the thermometer was located near the center of the room. Other locations were tried from time to time, and, except for the location near the ceiling grille, the recorded inside temperature drop showed very nearly the same relationship to the outdoor temperature drop in each case. This indicates a much better diffusion than was at first thought possible.

Propeller Fan: The propeller fan shown in Fig. 2 has a capacity, as determined by an anemometer, of about 3000 c.f.m. when pulling air through the three bed rooms. This is equivalent to about 37 changes of air per hour. Under these conditions the static pressure of the fan is 0.038 in. of water. As the fan was operated over shorter periods than was the case with the centrifugal fan, the bed room temperatures did not fall nearly as far, but during the rather short periods of operation, usually from about 8 to 11 p.m., the cooling effect was just as pronounced, as is evidenced by the curves shown in Fig. 8. It will be noted that, during the fore part of the evening of September 6, the fan was used to pull air through both the downstairs and upstairs rooms. When operating in this manner air was pulled through the downstairs rooms and up the stairway at the rate of about 10 air changes per hour, while at the same time air was drawn through the bed rooms at the rate of about 20 changes of air per hour. The break in the upstairs indoor temperature curve indicates the point at which the downstairs windows and doors were closed, and from that time on the air was drawn through the bed rooms only. The rather sharp rise in indoor temperature, which takes place after the fan is shut down, is characteristic of these installations, and is undoubtedly due to the heating effect of the walls and ceiling. The inside temperature drop obtained when natural ventilation was used seems to bear about the same relationship to the temperature drop produced by the propeller fan as that obtained with the centrifugal fan previously described. When the fan was not used, the attic door was kept open as before, consequently the stack effect of the structure could be utilized. Although there was a noticeable natural draft up the attic stairway, the cooling effect produced was in no way comparable to the results obtained when the fan was operated.

On several occasions the fan was used during the early evening to ventilate the downstairs, and quite satisfactory results were obtained. To obtain best results, of



This ceiling exhaust outlet is located in the upstairs hallway at the top of the stairs. When the bedroom doors are closed, the fan draws air from the first floor

course, the bed room doors had to be kept closed. The fan was especially effective in removing tobacco smoke from the living room when a group of people were present. If the bed room doors were closed, tests showed that it was possible to pull sufficient air through the downstairs rooms to produce about 30 changes of air per hour. When the downstairs was closed and only the bed room windows were open, there was not enough air movement up the stairway to the second floor to register on the anemometer. This does not prove, of course, that there was no leakage of air into the lower part of the structure, as the anemometer readings had to be taken at a point where the area was rather large. None of the tests, however, indicated that the leakage of air into the structure was serious enough to have an

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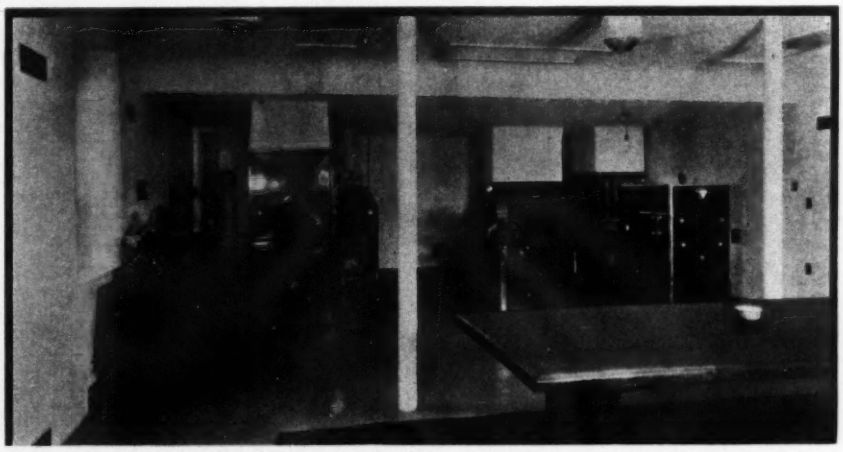

Fig. 1—In this showroom, the several pieces of equipment are made to operate just as they would if they were installed in the prospect's home

A Demonstrating Showroom

Oil Burners and Air Conditioners Operate

A DETROIT distributor of automatic heating and air conditioning equipment believes in actual demonstration to sell his goods. He takes the position that what the customer wants is heating and air conditioning, not an expensive piece of machinery.

So this distributor, who also sells refrigerators and other household devices, has put himself in about the same position to show results with automatic heating and air conditioning equipment as with a radio or a refrigerator. With a radio he can turn the dials and let the prospect listen to a program. He can open a refrigerator door and show eatables in a fine state of preservation.

When the prospective buyer of heating and air conditioning equipment comes into the place he or she is immediately ushered into a room that is completely heated and air conditioned by the very equipment that is on display. This room is attractively decorated and is furnished with an expensive library table and half a dozen luxuriously upholstered chairs. The thermometer will show 72 degrees. Another instrument will show the relative humidity at 45 per cent. And both of these factors are maintained uniformly winter and summer.

Everything is clean and neat as a living room. Over in one corner is a boiler-oil-burner hooked up with an air-conditioning cabinet that circulates filtered, tempered, humidified air, in winter, through a system of ducts built into the ceiling, with interior construction visible through plate glass windows at important points. The ducts lead to vents on the upper walls of the room. Registers lower down the walls are used to return the air from the room to the system.

Over in another corner of this showroom maintained by air conditioning dealers operating under the name of Radio Distributing Co., is a warm air oil-burning heating cabinet hooked up with an air conditioning cabinet. This system is also connected with the duct system. Either the warm air or the boiler system (steam or hot water) may be operated to condition the room at the will of the attendant, by merely throwing an air valve in the duct system.

At other points in the room is displayed other equipment such as a completely enclosed boiler-oil-burner (steam or hot water) for homes of 5 to 7 rooms and a gun-type oil burner.

Provisions for both winter and summer air conditioning have been made. For summer cooling, city water is circulated through the conditioning cabinet until that water, later in the season, grows too warm. The system is hooked up with a refrigeration unit for the more extreme summer weather.

Fig. 1—This is a head-on view of the new Union Pacific stream-lined train. It is described as being completely air conditioned

Air Conditioning *Important Feature of New* Stream-Lined Train

THE new Union Pacific stream-lined train which was released from the shops a few days ago for its first trip, to Washington, D. C., is fully air-conditioned. The forced ventilation system, designed especially for this service, heats the train in winter, cools it in summer, filters all dust from the outside air, and, by the use of sealed windows, maintains sufficient pressure in the cars to exclude all dirt. The ventilating system is so perfectly controlled that smoking is permitted in all parts of the cars without any discomfort to adjacent passengers.

The air conditioning is accomplished by the distribution of filtered air, cooled or heated as desired, through a system of ducts by means of power-driven blowers. These ducts extend the full length of the coaches with flexible, insulated connections between the coaches. The heating and cooling ducts are so arranged that when either is used for delivery of air to the cars, the other is used as a power-driven exhaust, thus positively controlling both input and output of air at all times. Temperatures are controlled by means of thermostats.

There is a duct carried throughout the train on each side below the floor level and a central ceiling duct which forms a part of the interior design. There is a radiator outlet at each seat and air is exhausted through a corresponding outlet in the ceiling duct so that a definite circulation is obtained at each seat unit. The windows are sealed in rubber and are set practically flush with the outside of the car to minimize wind resistance.

The main power plant of the train consists of a distillate-burning, internal combustion engine directly connected to a generator supplying electricity to two motors mounted on the forward truck of the first car.

In addition to the main generator there is an engine-driven auxiliary generator having a capacity of 25 kilowatts, which supplies current for battery charging; for one of the two air compressors (the other air compressor receiving its power from the main generator); for the air conditioning apparatus; for the lighting equipment and for refrigeration in the buffet.

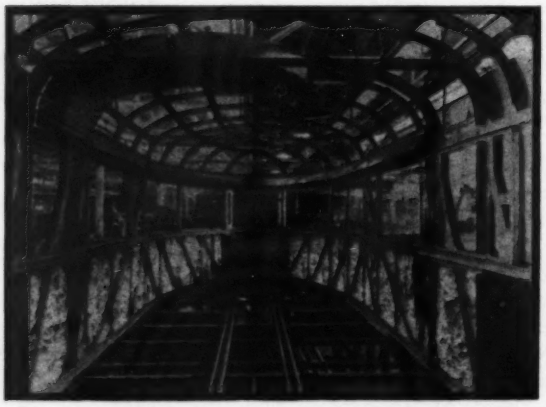

Fig. 2—The interior construction and wall insulated for the new Burlington stream-lined and air conditioned train is shown at the left

This Gas-Fired Air Conditioning Job Points Out an Untouched Market

Fig. 1—This illustration indicates to a certain extent the air conditioning requirements demanded of the equipment installed. Note the high ceiling

It is Important that the Air Conditioning Dealer Survey His Locality and take into Account the Specialized Businesses which are His Logical Prospects. One Such Prospect and a Typical Experience are Described

IF there is one market that has been largely overlooked by the automatic heating and air conditioning industry unquestionably it is the funeral home.

A motor trip up and down Main street—whether in Detroit, Keokuk, Iowa, or Mankato, Minnesota—will quickly show to any who have overlooked this field that considerable money has been added to the investment in this type of building in the past five years.

If the space in funeral publications and the time in mortuary conventions devoted to the subject of air conditioning is any criterion, it certainly behooves the up-and-coming heating contractor to canvass his own community to find out which directors are most alive to this situation.

When one stops to analyze, the reasons are not far to seek, for the director's thirst for information and his willingness to back up his decisions with expenditure. Naturally, the comfort of his public can be vitally affected by the condition of the air and the ventilation in his funeral home. This was the conclusion, for instance, of a funeral director firm in Greater Cincinnati, Nurre Brothers, with funeral homes in the "Over the Rhine" and Evanston districts.

As Mr. Nurre explained to me, this particular point was first brought to his attention by a firm of Cincinnati architects whose client's air conditioning system proved so satisfactory. Mr. Nurre then learned that the funeral home of late Gus Gildehaus at Cincinnati was similarly equipped with two units having zone control. He and his brother visited this home and inspected the zone control system of winter air conditioning con-

Fig. 2—A view of the remodeled structure which should be compared with the illustration below giving some idea of the possibilities in this work

sisting of two units with a trunk duct system composed of gradually-decreasing-in-size branch ducts.

In this home the brothers were shown how this system kept the air in motion averting stratification and stagnancy which naturally, during the course of services, not only depresses the mourners but causes actual discomfort. What impressed Mr. Nurre further was the fact that the system without any attention to it after it was lighted in the fall, could by attention only to the thermostat, deliver exactly the amount of warmth, humidity and comfort required individually for the separate zones on the two floors.

Fig. 3—This is a view of the building shown in the above photograph before remodeling was started. The change merely indicates what can be done in other cases and situations

He determined at that time that when their next unit was added, it would certainly have incorporated in it, the same plant and system for proper winter air conditioning and distribution. Consequently, when the remodeled brick residence at the corner of Dauner and Montgomery Road, Evanston, was opened an air conditioning system was in operation.

One of the first things that Mr. Nurre called to my attention after the expiration of his first full heating season in the spring of 1933, was the fact that the splendid by-product which came from its operation was additional since it had not been anticipated; namely, the cleaning of the air. The drapes which had been hung when the home was opened in March, 1931, were not sent to the cleaners until the summer of 1933, over two years later. This fact alone is sufficient to bring out not only the saving of labor but the opportunity for daintier carpets, upholstering on furniture, wall painting or wall papering, ivory or white woodwork which become not only possible but desirable when they are protected from constant contamination from soot, dust, grime and smudge.

In times like these it may seem that the final point made by Mr. Nurre, is of greatest significance to the funeral director, namely, that the cost of operation of this complete winter air conditioning system compares very favorably with the cost of operation of his coal fired plant in the funeral home in the "Over the Rhine" section. The actual cost for the heating season of 1932-33 is given in the table herewith. Mr. Nurre's estimate of $31.50 for cooking and hot water is given in the table which, by the way, is the normal cost in most homes. It should be added further that, although this house has no insulation, the windows and doors are weather stripped. Furthermore, it should be pointed out that this unit burns gas furnished by the Union Gas & Electric Co., Cincinnati, with a B.t.u. content of 850, being mixed artificial and natural gas invoiced at from 75c to 50c per 1,000 cu. ft., depending

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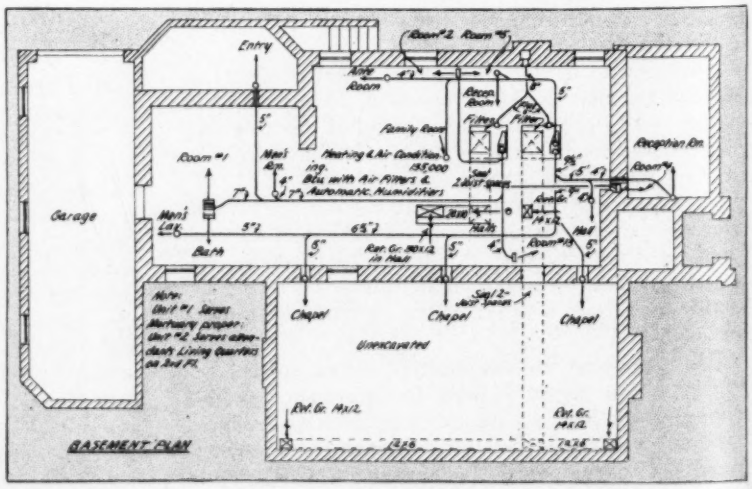


Fig. 4—Here is a plan of the basement and the air conditioning equipment and ducts installed. Note that the sizes are indicated on the ducts and register faces

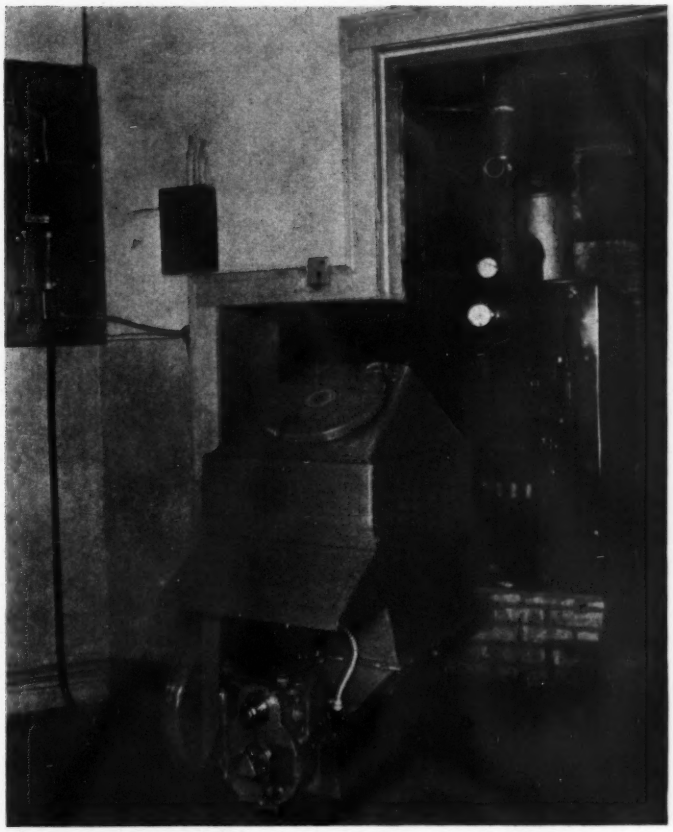


Fig. 1—"He was planning to remodel an old building which he owned, into a clinic building. . . . A stoker was the answer to the problem"

Follow Through Sold This Stoker Job

Remodeling was basis of this stoker job just recently completed. Quick work on the part of the contractor who saw an opportunity to place a stoker was the reason for the sale. The stoker stayed sold because the heating plant was corrected to take the change

WE were very busy during the past fall. It seemed almost as though an old time fall "rush" was on, the way we had to step around to keep everybody satisfied, and then suddenly we struck a dead calm. Nothing happened for a week—two weeks—nobody came into the show room—there was scarcely a phone call.

One dull December morning, after what seemed an unusual lull in activity, the phone peeled shrilly, or it seemed shrill to me, for it startled me so that I jumped to answer it. A strange voice asked for Mr. Blake, and I replied that he was not in.

"Can you locate him quickly for me?" he continued. "This is Mr. Reid from Center City, and I am very anxious to see Mr. Blake while I am in town about a job in Middleton."

"I'll do my best to locate him at once for you, Mr. Reid, and if you will call back in fifteen minutes, I'm sure I'll be able to tell you just when he can see you."

I did not explain that to locate him might be a difficult thing to do, for while Mr. Blake is usually very careful to leave word in the office as to where he is going and specific directions as to how we can reach him, this morn-

ing, thinking that he would not be needed, he merely said on leaving that he would stop at the Eastview Realty Co. and then go on in town to buy the hat that he had been promising himself all fall but had been too busy to buy.

I called the Eastview Realty Co., but he had just left. I then started in on the possible hat stores. I found him in the third one called, feeling good over the purchase of a new gray felt, and arranged to have him meet Mr. Reid in our office at twelve o'clock.

When Mr. Reid arrived, he and Mr. Blake put their heads together for a couple of hours. So engrossed were they in their discussion that they forgot about lunch and went right on talking and figuring.

REMODELING BASIS OF JOB

Mr. Reid's uncle, a Dr. Howard, was a physician in Middleton, it seemed. He was planning to remodel an old building which he owned there into a clinic building, and had turned the entire modernization program over to his nephew, Mr. Reid. Mr. Reid had brought rough sketches with him, and he told Mr. Blake that the part of the work concerning us would consist of the installation of a heating system and that Dr. Howard had also been talking something about installing a stoker. He said that they had had other bids on the work, but that he had persuaded Dr. Howard to wait and let him get a bid from Blake and Co., as he knew of Mr. Blake's excellent record for satisfactory installations.

Mr. Blake gave him an approximate price on the work but told him that he would rather make a trip to Middleton to look things over before giving him any definite figures, and while it meant a drive of 200 miles there and 200 miles back on a mere chance of getting the contract, he was willing to take the chance, as it was just the kind of a prospect he liked and that usually he was successful in closing.

Mr. Reid returned to Middleton that night, and Mr. Blake followed him the very next morning. He called on Dr. Howard at his residence and found him to be an affable old gentlemen who had spent his entire medical career in practice among the people of this mountainous region in which he lived and was planning this clinic for their benefit.

"Before we go down to the clinic," Dr. Howard said, "I want to talk to you about the heating system here in the house, Mr. Blake. I thought that I was buying the best that money could buy when I put in hot water heating, but it hasn't given me a bit of satisfaction. It's either too hot or too cold, and we have to be continually firing the boiler. I'd certainly like to know what the real trouble is. I've had certain of your so-called experts look it over, and they have recommended one thing and another. Some say the radiators are not big enough and the pipes are too small. Others say the radiator connections are wrong, ought to be at the top and the bottom of opposite ends instead of both bottom connections as they are. Another fellow wanted to change the pipe sizes, add radiation and make other changes, and I just told him that it looked to me as if those other changes oughtn't to be necessary."

Mr. Blake suggested that Dr. Howard let him look the plant over and then report to him what his findings were, and this agreed upon, he first checked the size of the boiler and found it to be more than adequate. Then he checked the radiation in each individual room and found that adequate. Theoretically the pipes could have been larger, but on testing he found that with a water temperature of 180 deg. Fahr, at the boiler each radiator was hot from end to end and from top to bottom, proving that in actual practice the pipes were adequate to supply the proper circulation to radiators. Therefore with the boiler large enough, the radiators large enough, and the radiators getting hot through and through, there was nothing of importance left to be condemned.

One objectionable feature that Mr. Blake noted was the fact that the overflow from the expansion tank discharged on the roof, and to guard against freezing and the possibility of a cracked boiler, he recommended that a new overflow be extended to the basement. He found the REAL trouble as to heating results, however, to be in the fuel or rather in the fuel regulation. The coal used was mined in that district, in fact Dr. Howard owned a coal mine. It was a high volatile coal—quick—flashy, and not having temperature control and leaving the heat control to members of the household, the boiler was not fired as often as necessary consistent with the rapidity with which the coal burned.

"Well, Dr. Howard," Mr. Blake reported, "I think you have a good heating system."

THE CAUSE OF TROUBLE

Dr. Howard looked at him in doubt, but he was open to conviction, and it was not difficult for him to realize that the facts which Mr. Blake gave him were true—that it was not the mechanical working of his heating system, but the uneven temperatures due to hand-firing and the fast burning coal that was causing the trouble.

Mr. Blake was convinced that a stoker was the answer to the problem, but he determined to try out a bit of sales psychology, to lead up to the subject but let Dr. Howard mention it first and have the satisfaction of feeling that he was the originator of the idea.

"And so, Dr. Howard," Mr. Blake said, "I see no reason for you to make any of the changes that you had contemplated. The fundamentals are right. Of course there are certain controls and accessories that you might add—perhaps a thermostat."

"What do you think of a stoker installation here, Mr. Blake," Dr. Howard interrupted.

"The very thing," Mr. Blake assured him. "I was just going to mention it."

A few figures submitted and a stoker was sold that would permit him to burn successfully coal that came from his own mine, that would provide even heat, and do away with the annoyance of such frequent firing periods.

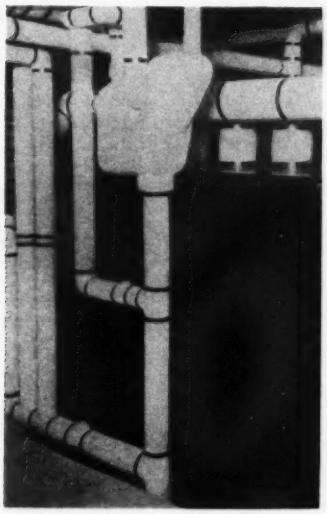
The practical knowledge that Mr. Blake displayed, and the sound advice which he gave him as to correcting the trouble in his residence heating plant, built up Dr. Howard's confidence to the point where he was very anxious for him to install the heating in the new clinic.

This clinic was a cellarless building which had formerly been used as a small country hotel. Dr. Howard and a young associate proposed to have their offices, X-Ray laboratory, and provisions for caring for patients for short periods there, as many come for treat-

(Continued on Page 105)

How to Select Boilers for Automatic Oil, Gas and Coal Jobs

By H. L. Alt



The importance of the boiler in heating installations cannot be over emphasized

This article indicates what must be taken into consideration, as far as size is concerned, when boilers are adapted to use with the various types of automatic heating equipment now available

THE heart of any heating system not supplied from street mains is the boiler. The boiler may be of hot water or steam type, cast iron or steel in construction, oil, gas or coal fired, but when all is done it is the motive power that runs the system and can make or break any heating job no matter how well executed the work may be in every other particular. Moreover an incorrectly pitched pipe, a radiator in a wrong location, or even a pipe or radiator which is too small, may be rectified without a great deal of trouble or expense but the boiler is an entirely different proposition and no contractor can afford to tear out a boiler after it has been once installed and replace it with a larger one. Therefore it behoves one to take special care in selecting a boiler so far as size is concerned.

In the ordinary small sized job cast iron sectional boilers of either horizontal or vertical type formerly were quite standard. Relatively recently, steel boilers of specially small sizes suitable for residence work have been introduced.

In calculating the size of a coal-fired boiler, let us assume for example a bungalow with hot water heating and that the total radiator surface installed is 510 sq. ft. of hot water surface; in addition to this is the radiation from the main which also must have its heat supplied by the boiler. This radiation can be figured by taking the outside surface on the pipe and multiplying by the length of each size of pipe used to get the square feet of pipe surface; then this surface is multiplied by 2 Btu. per sq. ft. per degree of temperature difference between the temperature in the pipe and in the room. The result divided by 150 Btu. will give the equivalent direct heating surface for hot water or, if divided by 240 Btu. will give the equivalent direct heating surface for steam. This for bare pipe—covered pipes are assumed to have a loss of 40 per cent as much, which is based on the covering having an efficiency of 60 per cent.

All of this may be reduced down to a simple formula

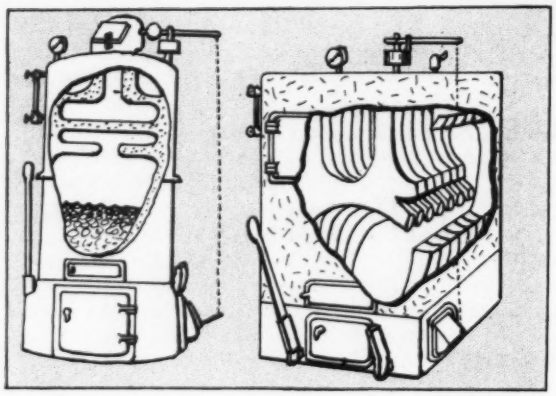


Fig. 1—In the illustration at the extreme left, a common cast iron horizontal heating boiler is shown. Fig. 2—A cast iron vertical jacketed heating boiler is shown at the right

Fig. 3—Below, at the left, typical low pressure steel heating boiler for coal firing. Fig. 4—At the lower right, typical steel firebox boiler for burning oil

for hot water and one just as simple for steam, the formulae being

$$\frac{\text{Hot water pipe surface} \times 2 \text{ Btu.} \times 105}{150 \text{ Btu.}} = \text{equals E. D. R.}$$

for bare pipe

or

Hot water pipe surface $\times$ 1.4 equals E.D.R. for bare pipe and

Hot water pipe surface $\times$ 0.56 equals E.D.R. for covered pipe while for steam the same method gives

$$\frac{\text{Steam pipe surface} \times 2 \text{ Btu.} \times 150}{240 \text{ Btu.}} = \text{equals E.D.R.}$$

or

for bare pipe

Steam pipe surface $\times$ 1.25 equals E. D. R. for bare pipe and

Steam pipe surface $\times$ 0.50 equals E. D. R. for covered pipe.

In very accurate work these quantities may all be taken off and the pipe losses quite accurately computed in which case the losses on the return lines of a vacuum system or the wet return on a gravity steam system may be considered as having about two-thirds of the loss given by the above formula for steam. Usually it is quite accurate enough to take the pipe losses as 25 per cent of the heating surface on any kind of a steam or hot water job.

On this basis the boiler will have to have a capacity of the heating surface (that is the actual radiator surface) plus 25 per cent. In the case of the bungalow with 510 sq. ft. of hot water radiator surface the boiler capacity must be

510 plus 25 per cent of 510 or 637 sq. ft.

and, if the boiler output is given in the catalog in Btu. per hour it should be not less than

637 $\times$ 150 Btu. or 105,550 Btu.

and any boiler which will give this Btu. delivery of 105,550 Btu. with the firing period desired would be the proper size to use. Where the boiler is rated in square feet any boiler rated at slightly over 637 sq. ft., with the firing period desired also would be the proper size.

CHECK SIZE OF BOILER GRATES

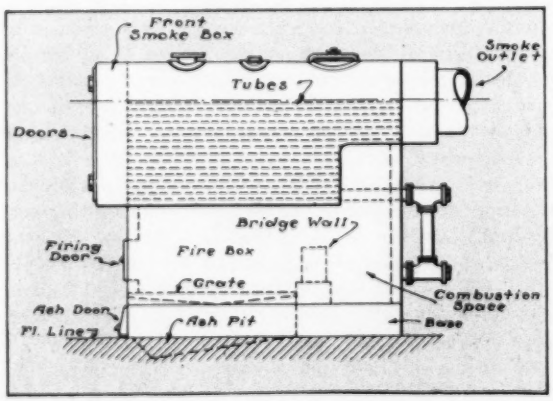
Owing to some confusion in regard to boiler ratings it always is well to check the size of boiler grate and to use this as a sort of guide in selecting the boiler size. To do this it only is necessary to determine the amount of coal to be burned and to divide this by the combustion rate allowable so as to determine the area of grate necessary. In most small heating boilers, and in some not so small, it may be assumed that every pound of coal will produce heat enough to deliver 8,000 Btu. into the water for every pound of coal burned. Then to deliver 105,550 Btu. into the water there must be burned on the coldest day

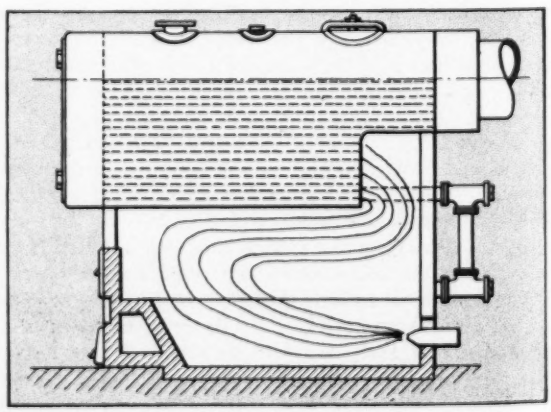
105,550 Btu. /8,000 Btu. or 13.2 lb. of coal per hour.

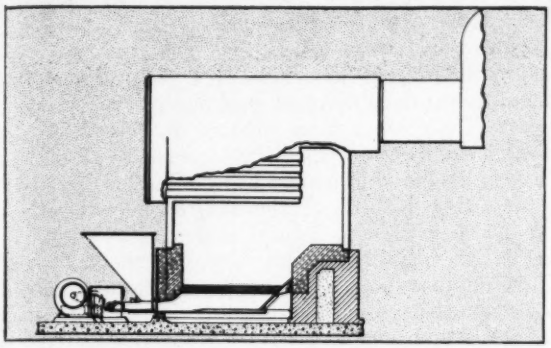
Some very conservative designers limit the combustion rate on small boilers to 5 lb. of coal per sq. ft. of grate per hr., but slightly higher rates may be used without danger. Suppose a maximum rate on the coldest day is set at 7 lb. of coal per sq. ft. per hr.; then the grate area required would be

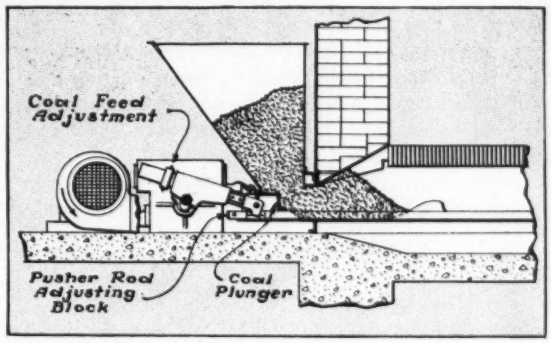
13.2 lb./7 lb. or 1.8 sq. ft. required grate area.

The firing period—otherwise the length of time between stokings—is determined by the capacity of the fire pot or fire box and usually is given in the boiler catalogs. It may be computed by taking the area of the fire pot or box in sq. ft. and multiplying by the height from the









grate to the sill of the firing door in feet thus obtaining the cubic contents available to retain the charge of coal. About 75 per cent of this coal can be burned before it is necessary to refuel the remaining 25 per cent of the original charge being required to ignite the new coal. If broken coal is taken as weighing approximately 55 lb. per cu. ft., the formula becomes

Cubic contents × 75 per cent × 55 lb./combustion rate equals firing period.

With the steel firebox boiler a double check is possible for, not only can the size of grate be worked out and checked but a further check is possible against the heating surface in the boiler itself. When checking for required grate areas in steel boilers it must be remembered that the boilers usually run toward larger sizes and that the combustion rate is somewhat higher than in the ordinary small cast iron boilers. The way in which the heating surface may be checked for capacity is as follows:

REDUCE BOILER LOAD TO E. D. R.

Take the total load in Btu. including all radiation, piping, hot water load, and any other heat that the boiler may have to supply and divide this Btu. by 240 to reduce the total boiler load to E. D. R. Then divide this total E. D. R. by 140 to reduce it to boiler Hp., and 10 times this result will be the amount of heating surface that the boiler should contain. This rule is based on 10 sq. ft. of boiler heating surface being capable of developing one boiler Hp. For example:

What would be the heating surface in a steel boiler for a job where there is a total Btu. demand of 1,000,000 Btu. per hr.?

1,000,000/240 equals 4,000 (approx.)

4,000/140 equals 29 boiler Hp. (approx.)

29 Bhp. × 10 equals 290 sq. ft. of heating surface required.

Boilers used for oil firing may be coal fired boilers with the grates removed and oil burners substituted or they may be boilers specially designed for oil use. The chief requirement in an oil fired boiler is that the flue travel be as long as possible and that the joints should be protected from the direct action of the oil flame. It frequently happens that boilers for oil firing require to be set higher than for coal firing in order to obtain adequate combustion space which is very important. One rule for this is to allow 3 cu. ft. of combustion space for every gallon of oil burned per hour at the maximum load. Thus, of the maximum demand on a boiler required the burning of, say, 180 lb. of oil per hour the cubic feet of combustion space would be about

180/7.5 × 3 cu. ft. or 72 cu. ft.

Like all rules-of-thumb this arbitrary amount is only an indication of what should be allowed in a more or less average case.

A much more accurate rule and one which gives a somewhat higher figure is the one for which the formula is as follows:

$$C \text{ equals } \frac{R \times 1.6 \times 240}{E \times H \times 1.75}$$

when R is the E. D. R. in the building exclusive of piping

1.60 is the factor to allow 60 per cent for piping and all other losses

240 the heat emitted by 1 sq. ft. of radiation

E is the overall boiler efficiency

H is the heat content per pound of oil burned

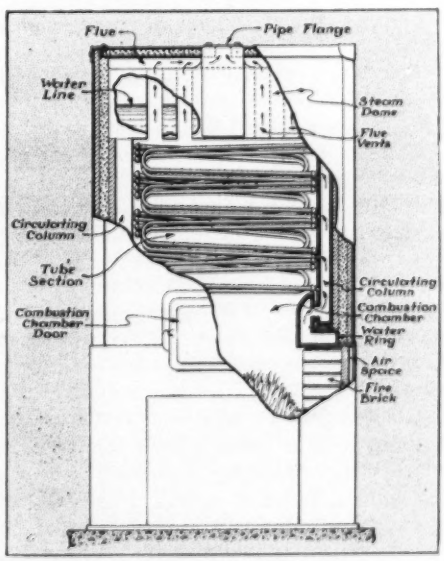


Fig. 5—At the upper left, the application of a stoker to a steel firebox boiler. Fig. 6—Upper right, another type of stoker

Fig 7—At the right is shown a cut-away drawing of a special boiler constructed for gas firing

1.75 is a constant being the number of pounds of oil allowed to 1 cu. ft. of combustion space.

As an example of the application of the above formula let it be assumed that a steam system with 7,200 sq. ft. of E. D. R. actually in place in the building is to have a steel boiler burning 19-23 oil; what would be the combustion space required under the boiler?

Substituting in the formula gives the following:

$$\frac{7{,}200 \times 1.6 \times 240}{0.80 \times 19{,}000 \times 1.75}$$ equals combustion space

or

104 cubic ft., equals combustion space

Gas fired designed boilers are a more distinct type than either coal or oil fired boilers; by this is meant that the boiler designed purely for gas use generally is of a distinctive type. In many cases, the tubes are copper and every effort is made to extract the last Btu. possible from the gas fire before allowing the gases to escape into the flue. A gas fired boiler also requires no draft so that the reduction of the chimney gases to a very low temperature is quite feasible.

TWO BOILER EFFICIENCIES

There are two efficiencies when speaking of boilers and they must be clearly distinguished and not confused one with the other. The first is the test efficiency, or efficiency when the load, firing, attention and nearly every other factor is just what it should be; the second is the overall seasonal efficiency which is the average efficiency of the boiler over the entire heating season when almost everything is against it such as days of running at low load, times when attention is forgotten, banking at night, fire allowed to burn too long without stoking, clogging up with ashes, etc. Naturally there is a big difference between the test efficiency and the overall seasonal efficiency.

There are many types of boilers on the market and it could not be attempted in a discussion of this kind to show and explain every boiler design now being manufactured; a few of the representative types of boilers will be illustrated with the idea of familiarizing the contractor with the general features of construction.

TYPES OF STOKERS

The first type considered will be that shown in Fig. 1 which is termed the cast iron horizontal round boiler, the sections being put together in a horizontal position. This boiler was developed originally for burning coal as a fuel. Since the advent of the oil burner many of the boilers have been equipped with oil firing as the combustion space is fairly large in consideration of the load which they will carry. The gases pass up through the various sections located above the firepot and impinge on obstructing water surfaces as they rise toward the smoke outlet at the top. This is a one-pass boiler, that is, the gases only pass through the heating surfaces once.

The second type of boiler is used for larger installations where better efficiency is desired and usually is provided with an insulated casing. It may be termed a vertical cast iron boiler or a vertical jacketed cast iron boiler where the casing is included. Without the jacket the outsides are covered with asbestos after the spaces between the sections are cemented gas tight. See Fig. 2.

Leaving cast iron boilers of which there are many others differing in minor and even major details from those shown the subject of steel boilers will be considered. There are a large number of designs of steel boilers but the most popular type seems to be the steel firebox design of which the boiler shown in Fig. 3 is a good sample. This is a cylindrical fire tube boiler with the coal burned in the grate and the gases passing over into a combustion chamber in the rear of the bridge wall. Here the gases turn upward and pass into the short fire tubes extending from the combustion space to the front smoke box; turning in the front smoke box they rise up and enter the long fire tubes running to the smoke outlet in the rear whence they enter the smoke pipe. This is a true three-pass boiler and has water legs surrounding the firebox on three sides.

BOILER FOR OIL FIRING

This same boiler may be used for oil firing—note the long flue travel—without any alteration of the boiler itself; in such cases the oil may be fired from the front but is preferably injected from the rear so that the oil flame develops its full heat nearer the front of the boiler and then passes back following the same course as the coal gases previously described. This is illustrated in Fig. 4 where the additional height of the combustion chamber for oil use is indicated. On this particular boiler the use of oil generally necessitates raising the boiler anywhere from 6 in. to a foot or the providing of an oil burner pit 6 in. to a foot deep which accomplishes the same result.

STOKERS APPLIED TO STEEL BOILER

When stokers are applied to steel boilers—which is a rapidly growing practice—the customary procedure is to omit the cast iron base for the boiler and to substitute in place of this a masonry setting lined with fire brick and suited in form to receive the stoker. The usual distance from the bottom of the water leg of the steel boiler to the floor is then made around 3 ft. or so—depending on the size and capacity of the stoker—and such installations frequently have the stoker set down in a pit to avoid increasing the overall height required for the boiler. A typical installation of this character is indicated in Fig. 5 for one type of stoker and in Fig. 6 for another type.

In gas installations the cost of the fuel is usually the most important matter to consider and for this reason there have been several types of gas boiler developed especially for gas use with the idea of getting the very highest possible heat transfer from the gas fire to the boiler and also with the aim to prevent as far as possible any heat radiation from the boiler itself after the heat has been absorbed by the heating medium in the boiler be it water or steam. One example of this special type of boiler is indicated in the cut shown in Fig. 7 where the heating surface consists largely of small tubes thickly nested and the insulation consists of three layers of asbestos, the two outer layers being asbestos board and the middle layer asbestos cells.

Automatic Heat and Air Conditioning Questions

Oil Reservoir Overflows

To the Editor:

See if you can throw any light on this problem:

Last spring we had a case where a range burner bottle set up in a reservoir in a customer's home would overflow the reservoir when the burner wasn't used for a couple of weeks. We spent considerable time fixing "leaks" at this place until we decided that the oil was gradually seeping out of the bottle into the reservoir.

This surprised us and we did some experimenting. We set up half a dozen bottles in reservoirs and watched them, and they all gradually filled up and overflowed after a couple of weeks. We went to a customer's home where there was a range burner not in use, set up the bottle and the same thing happened.

Now we have a case where a bottle would overflow the reservoir in a day or two. Replaced the bottle and it went three weeks. The same bottle that went a day or two we set up on an experimental reservoir and it has remained three weeks without raising the level a bit.

What's the answer?

Massachusetts. B. H.

To the Reader:

We have your letter stating that the reservoir on a customer's range burner constantly overflows. This is a very common problem, at least it has been in the past in connection with some of the range burner models.

The oil feed on these burners is the so-called barometric type in which an air tight bottle is inverted into a small sump or reservoir below it. As soon as the oil rises in the lower reservoir to the opening in the mouth of the bottle, no more air can enter the bottle and a slight vacuum is formed so that the barometric pressure acting on the free surface of oil in the lower reservoir holds the oil in the bottle and the so-called constant level is maintained in the lower reservoir until oil is withdrawn and the mouth of the bottle is again exposed. This cycle goes on indefinitely.

This so-called constant level, however, is subject to certain inaccuracies. If the burner is not in use and a decided change in temperature takes place in the room for any cause, the air in the bottle above the oil will expand with an increase in temperature, forcing oil out of the bottle into the lower reservoir above its normal level. Changes in barometric pressure will also cause this condition. The more air that happens to be in the bottle, the greater the expansion will be. The rise in level in the lower reservoir will depend on its cross sectional area as compared to the volume of air in the upper tank. Some of the earlier range burner models used a lower reservoir of very small cross section area, so that with even a comparatively small change in temperature of the bottle the oil would rise sufficiently to run over the top of the reservoir.

The underwriters soon became aware of this fault in range burner construction and it has now made a definite ruling in regard to the ratio between the cross sectional area of the lower reservoir and the volume of the upper so that starting April 1, 1934, all range burner manufacturers, to obtain the Underwriters' approval will have to maintain a ratio which will prevent any difficulty from this source. The only other cause of an undue rise of oil in the reservoir is a leak in the bottle or tank which allows air to enter the bottle and destroy the slight vacuum therein.

The Reader Checks the Solution

To the Editor:

I appreciate your having gone to so much trouble in the matter of my inquiry about overflowing of range burner reservoirs.

We of course knew about expansion, but we thought there was something else besides in that our observations seemed to show a gradual and continuous rise. Evidently our original observations were not complete enough, and we have since confirmed your reports by various experiments which show the trouble to be nothing more than expansion of the air in the bottle into a reservoir without sufficient reserve capacity to take care of it.

On a 50-degree rise in temperature we found that a bottle nearly full would force out about 6 fluid ounces; a bottle ¾ empty forced out 20 fluid ounces, or roughly around 40 cu. in., which was sufficient to fill up and overflow this particular reservoir twice. Again, after reaching the top temperature of 75 deg. Fahr. and taking out the excess oil in the reservoir, this same overflow again occurred in two or three days from a temperature variation which, while not measured, could not have been over 15 degrees.

None of your reports mentions expansion of the liquid itself. Range oil changes volume about 1 per cent for every 20 degrees, and therefore on a 50-degree change on a full two-gallon bottle, there would be 8 or 9 cu. in. expansion of the fluid itself.

Massachusetts. B. H.

Proportioning Heating Costs

To the Editor:

A prospective customer of mine has asked me how much it will cost to heat a room by steam if coal costs $10.00 per ton. Any information you can give me will be greatly appreciated.

Illinois. F. A. D.

To the Reader:

It is impossible to answer your question offhand. There are several things you must know and figure before you can arrive at an answer.

First, it is necessary to know the size of the room, that is the length and width, and height.

Second, it is necessary to know the number and sizes of the windows and doors.

With this and other information, it is possible to calculate the heat loss from the room in Btu.

We suggest that you write and tell us completely what the problem is that you are facing and we will work out a specific answer, based on the conditions you decribe.

A Restatement of the Problem

To the Editor:

I have received your letter in which you ask me to describe my problem. What I want to know is how many pounds of steam will one pound of coal give when using the coal that is mined in this part of the State. Also what method is used in measuring the amount of steam that a radiator consumes if you know the size of the radiator.

In other words, what I want to know is this: A factory is to make charges to its different departments for the heat they consume. The boiler room makes these charges as per the amount of coal used.

Illinois. F. A. D.

To the Reader:

We should suggest that instead of attempting to figure the number of Btu. in the coal your customer uses, make a survey of the plant and determine the square feet of radiation installed in the different departments. If you know the size, type and manufacture of the radiation in question, it should be easy enough for you to obtain the square foot ratings from the manufacturers catalog. When you have done this, determine the total amount of radiation installed by adding up the amounts in the different departments.

If you divide the amount of radiation installed in a certain department by the total amount of radiation, you will obtain the percentage installed in that department. For instance, if you find that all of the departments of the factory have, say, 10,000 sq. ft. of direct steam radiation, and if you find that one department has 1,000 sq. ft. of it, 1,000 divided by 10,000 will give 0.10, or ten per cent. In other words, that department should be charged with ten per cent of the total heating cost. This takes into account the piping and boiler losses as well as the amount of heat actually used in the different departments. Obviously, the department using the smaller amount of heat should be charged with a smaller percentage of the piping and boiler losses. All of this is on the assumption that the heating boiler in question supplies heat only for heating purposes.

Rhode Island Heating Contractors Hold Annual Meeting

Christopher D. Potter of Smith-Gibbs Co., Providence, was re-elected president of the Heating, Piping and Air Conditioning Contractors Rhode Island Association at the annual meeting of that body, held on February 5. The vice president for the ensuing year will be Roland P. Lane, of Lincoln & Lane Co., Pawtucket; the secretary, Charles L. Burdon, of General Piping Co., Providence, and the treasurer, Philip R. Robinson, of Grinnell Co., Inc., Providence.

The directors are: Providence County, J. Walter Mills, Rhode Island Supply & Sprinkler Co., Providence; Kent County, Robert Graham, West Warwick; Washington County, Robert Drysdale, Westerly; Bristol County, F. C. Seymour, Warren; Newport County, C. F. Murphy of P. J. Murphy & Co., Newport; and the directors at large are: Henry Taylor of Providence, William Files of Files Engineering Co., Providence; J. F. Martin, Pawtucket, and George Frazier, Peacedale.

Monitor Utilities Corp. Appoints Sales Representatives

Monitor Utilities Corporation of Long Island City, N. Y., has announced the appointment of the William H. Kortz Co. as sales representatives for its products in twelve counties in eastern Pennsylvania, and that Frank J. Darr has been appointed distributor in Texas, while Harry Sussman of Belmont, Mass., will cover five counties in Massachusetts in the vicinity of Boston and Cape Cod, and also portions of the state of Maine.

Will Deal in Air Conditioning Equipment

The Automatic Heating Company of Connecticut, Inc., has been incorporated with a capital of $50,000, to deal in air conditioning equipment, temperature control systems, humidifiers and heating devices. The new company, which was organized by C. Oakley Baring, formerly with the Minneapolis Honeywell Regulator Co., has opened offices at 10 Clinton Street, Hartford, Conn. The officers of the company are: President and treasurer, W. G. Parsons, and secretary, C. Spencer Gross.

Roots-Connersville Blower Corp. Is Now Its Name

The Connersville Blower Co., Inc., of Connersville, Ind., will hereafter be known as the Roots-Connersville Blower Corporation. This action was taken at the recent annual meeting of the stockholders, at which the following officers were re-elected: Chairman of the board, L. J. Brown; president, J. S. Tatman; first vice-president, B. C. O'Brien; second vice-president, G. W. Ansted; treasurer, W. E. Newkirk, and secretary, Emery Huston. The board of directors, in addition to Messrs. Brown, Tatman, O'Brien and Ansted, consists of the following: F. S. Heath, E. D. Johnston, Wayne Stacey, C. A. Thompson and Joseph M. Wilkin.

Their Most Prized Possession

The heating contractor who sells Spencer Boilers holds this priceless advantage. In offering a Spencer Boiler to any building owner, his efforts are supplemented by the exceptional good will that Spencer enjoys among the prospect's friends, relatives, neighbors and business associates. Year after year, a very large percentage of all Spencer Boiler sales are made as the result of the enthusiastic recommendation of satisfied owners. When you display or suggest the installation of a Spencer Boiler, you immediately receive the benefit of this high esteem in which the name Spencer is universally held.

SPENCER HEATER COMPANY, Williamsport, Pennsylvania
Division of Cord Corporation
BRANCHES IN PRINCIPAL CITIES
The Spencer Foundry Company, Ltd., Penetanguishene, Ontario and Montreal, Quebec, Canada

SPENCER BOILERS
for steam, vapor or hot water

The illustration shows the handsome new Spencer two-tone jacket now supplied as optional equipment for Spencer Cast Iron Sectional Magazine Feed Boilers

Oil Burner Convention and Show Expected to Pass All Previous Records

Everything is in readiness for the 11th national oil burner show and convention of the American Oil Burner Association, which is to be held at the Commercial Museum in Philadelphia March 5 to 9. Harry F. Tapp, executive secretary of A. O. B. A., is of the opinion that the show "will eclipse in numbers and representative exhibits all previous records, and that the convention program will be nearer to the day-to-day working schedule of the industry than any previous program ever presented before an oil burner convention."

The nominating committee, consisting of Wm. F. Brannan, chairman; J. J. Donovan and A. G. Baerenklau, has issued its report as follows:

Nominations for Manufacturer Division directors for three year terms:

M. J. Hammers, Petroleum Heat & Power Co.

J. A. Lattner, Century Engineering Corp.

R. C. Hoffman, York Oil Burner Company.

Stanley C. Hope, Gilbert & Barker Manufacturing Co.

J. H. Hirsch, Automatic Burner Corporation.

M. F. Cotes, Motor Wheel Corporation.

Eugene C. Clarke, Bethlehem Foundry & Machine Corp.

Dealer Division nominations will be reported at the annual meeting, following the action of this division at its meeting on Wednesday, March 7.

Nominations for officers are as follows:

R. M. Sherman, Silent Glow Oil Burner Corp.—President.

W. J. Smith, Cleveland Steel Products Corp.—Vice President,

C. E. Campbell, Nu-Way Corporation—Vice President. S. C. Hope, Gilbert & Barker Manufacturing Co. —Vice President.

W. F. Brannan, Anchor Post Fence Company—Vice President.

Nomination for Dealer Division vice. president will be reported following action of the Dealer Division at its meeting on Wednesday, March 7.

Nominations for Executive Committee are as follows:

R. M. Sherman, Silent Glow Oil Burner Corp.

M. J. Hammers, Petroleum Heat & Power Company.

W. J. Smith, Cleveland Steel Products Corp.

W. S. Salway, Electrol Incorporated.

S. C. Hope, Gilbert & Barker Manufacturing Co.

The directors whose terms do not expire this year are:

Name	Term Elected	Term Expires	Name	Term Elected	Term Expires
W. F. Brannan	1932	1935	E. P. Bailey	1933	1936
C. E. Campbell	1932	1935	R. M. Sherman	1933	1936
Haldeman Finnie	1932	1935	C. H. Chalmers	1933	1936
W. J. Smith	1932	1935	W. S. Salway	1933	1936
Earl Marr	1932	1935	John H. McIlvaine	1933	1936
J. J. Donovan	1932	1935	John H. Blake, Jr.	1933	1936
A. J. Fleischmann	1932	1935	E. A. Halbleib	1933	1936
Dealer Division					
John W. Scott	1932	1935	L. L. Jacobs	1933	1936
A. G. Baerenklau	1932	1935	R. S. Bohn	1933	1936

Dealer Day has been set for Wednesday, March 7, when the morning will be given over to an "Oil Burner Code Merchandising Session" which will terminate with an open forum to be conducted by Assistant Deputy Administrator W. Schwan, representing the National Recovery Administration. This session, which will be presided over by R. S. Bohn, chairman of the Dealer Division of the A. O. B. A., will include a paper on the oil burner code by Morgan J. Hammers, chairman of the Oil Burner Code Authority; a paper on accounting practice and uniform accounting systems in relation to NRA codes by J. W. McEachren of Ernst and Ernst; a paper on the function of the large corporation in the oil burner industry by T. K. Quinn, vice-president of the General Electric Company, and finally the open forum on the Code of Fair Competition for the Oil Burner Industry conducted by Mr. Schwan. The forum will be continued in the afternoon.

The program follows:

Convention Program of the American Oil Burner Association, Inc.

Commercial Museum
34th Street below Spruce Street
Philadelphia
March 5-9
(A. O. B. A. Headquarters—Benjamin Franklin Hotel)

Monday, March 5

8:00 a. m.-5:00 p. m.—Installation of Show. Exhibition Hall, Commercial Museum.

9:00 a. m.-9:00 p. m.—Registration. Exhibition Hall Lobby.

Morning

9:30 a. m.-12:00 noon—Meeting Executive Directors, Dealer Division. LaFayette Room, Benjamin Franklin Hotel.

9:30 a. m.-12:00 noon—Meeting Executive Committee. Ship Room, Benjamin Franklin Hotel.

Afternoon

2:00 p. m.-5:00 p. m.—Meeting Board of Directors. Ship Room, Benjamin Franklin Hotel.

Evening

7:00 p. m.-10:30 p. m.—Opening Oil Burner Show. Exhibition Hall.

Tuesday, March 6

9:00 a. m.-9:00 p. m.—Registration. Exhibition Hall Lobby.

Morning

9:30 a. m.-12:00 noon—Meeting Board of Directors. Ship Room, Benjamin Franklin Hotel.

Afternoon and Evening

1:30 p. m.-10:30 p. m.—Show. Exhibition Hall.

Wednesday, March 7

Dealer Day

9:00 a. m.-9:00 p. m.—Registration. Exhibition Hall Lobby.

Morning

9:45 a. m.-12:30 p. m.—*Oil Burner Code Merchandising Session. Ball Room, Ball Room Floor, Commercial Museum. (R. S. Bohn, Chairman of the Dealer Division of the A. O. B. A. presiding.)

Paper on Oil Burner Code by Morgan J. Hammers, Chairman of the Oil Burner Code Authority.

Paper on Accounting Practice and Uniform Accounting Systems in Relation to N. R. A. Codes by J. W. McEachren of Ernst and Ernst.

Paper on the Function of the Large Corporation in the Oil Burner Industry by T. K. Quinn, vice-president of the General Electric Company.

Open Forum on the Code of Fair Competition for the Oil Burner Industry, conducted by W. L. Schwan, Assistant Deputy Administrator, N. R. A.

Afternoon and Evening

1:30 p. m.-10:30 p. m.—Show, Exhibition Hall.

. 2:00 p. m.-4:30 p. m.—Manufacturer Conference. Lobby Meeting Room, Commercial Museum.

2:00 p. m.-4:00 p. m.—*Meeting Dealer Conference. Ball Room, Commercial Museum.

4:00 p. m.-5:00 p. m.—Meeting New Board of Governors, Dealer Division. Ball Room Extension, Commercial Museum.

5:00 p. m.-6:00 p. m.—Meeting Executive Directors, Dealer Division. Ball Room Extension, Commercial Museum.

Thursday, March 8

9:00 a. m.-9:00 p. m.—Registration. Exhibition Hall Lobby.

Morning

9:00 a. m.-10:30 a. m.—Annual Meeting. Franklin Room, Benjamin Franklin Hotel.

10:30 a. m.-12:30 p. m.—Meeting New Board of Directors. Ship Room, Benjamin Franklin Hotel.

Afternoon and Evening

1:30 p. m.-10:30 p. m.—Show. Exhibition Hall.

7:00 p. m.—Annual Banquet and Dance (informal). Crystal Ball Room, Benjamin Franklin Hotel.

Invocation. Rev. William S. McCormick, D. D., Pastor, Bethlehem Presbyterian Church, Philadelphia.

Edward P. Bailey, Toastmaster.

President's Address.

Guest Speaker—Major R. B. Paddock, Deputy Administrator N. R. A.

Speaker of the Evening—Edw. J. Cartell, Philadelphia.

Friday, March 9

9:00 a. m.-9:00 p. m.—Registration. Exhibition Hall Lobby.

Morning

9:45 a. m.-12:30 p. m.—Sales Engineering Session. Ball Room, Convention Hall, Commercial Museum.

Lionel L. Jacobs, Chairman.

Paper on Domestic Temperature Control Problems, by Nelson B. Delavan and L. M. Persons, Penn Electric Switch Co.

Paper on Range Burners, by R. M. Sherman, The Silent Glow Oil Burner Corporation.

Paper on Air Conditioning, by André Merle, Clyde R. Place Co., New York consulting engineers.

Paper on Sales Engineering, by Doyle G. Malone, The Petro-Nokol Company of Chicago.

Open Forum by Chairman.

Afternoon and Evening

1:30 p. m.-10:30 p. m.—Show. Exhibition Hall.

*Note: All dealers, member and non-member, are cordially invited to attend this meeting and take part in the discussion.

Exhibitors at the Eleventh National Oil Burner Show

The Eleventh National Oil Burner Show will be held at the Commercial Museum in Philadelphia, Pa., March 5 to 9, as previously announced in these columns, and the following concerns have reserved exhibit spaces as indicated herewith:

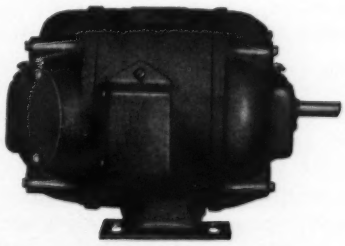
Exhibitors	Booth No.
American Oil Burner Association, Inc.	
American Radiator Company	501-502
American Society Heating & Ventilating Engineers	
Anchor Post Fence Company	312-412
Art Tool and Die Company	805
Automatic Burner Corporation	606-607
Automatic Products Company	213
Bell & Gossett Company	313
Bethlehem Foundry & Machine Corporation	406-407
Burnham Boiler Corporation	302
Century Electric Company	705
Century Engineering Corporation	410-411
Chase Brass & Copper Co.	704
Cleveland Steel Products Corporation	112-113-114
Crucible Steel Company of America	703
Bureau of Standards, U. S. Dept. of Commerce	
Detroit Lubricator Company	503-603
Distillate Burner Manufacturers' Assn.	
Domestic Engineering	512
Electrical Dealer	812
Electrol Incorporated	308-309-408-409
Enterprise Oil Burner Company	205
Fitzgibbons Boiler Company, Inc.	303-403
Florence Stove Company	401-402
Franklin Oil Heating, Inc.	714
Fuel Oil Journal	311
General Electric Company	508-509-608-609

Because of Century's 30 years' experience in building motors right—because of Century's strict adherence to high standards—because of Century's ability to recommend the right application of the right motor ...resale manufacturers and users on Century ledgers always have "good luck" with their motors.

Sizes range from 1/250th to 600 horse power, depending on type.

CENTURY ELECTRIC COMPANY
1806 Pine Street St. Louis, Mo.
Offices and Stock Points in Principal Cities

Century
MOTORS



Gilbert & Barker Manufacturing Company....304-305-306-307
Jefferson Electric Company....310
Kelvinator Sales Corporation....612-613
Kleen Heet, Inc....506-507
Lonergan Manufacturing Co....713
May Oil Burner Corporation....706-707-807
Mercoid Corporation....710-711
Micro Corporation....504-505
Minneapolis-Honeywell Regulator Company....510-511
Monarch Manufacturing Works, Incorporated....602
Motor Wheel Corporation....806
McDonnell & Miller....204
Nu-Way Corporation....110-111
Oil Burner Code Authority, Inc....
Oil Heat....212
Oil Heating Institute....
Orr & Sembower, Inc....414
Penn Electric Switch Company....210-211
Petroleum Heat & Power Company....206-207
Petrometer Corporation....202
Philadelphia Oil Burner Association....
Plibrico Jointless Fire Brick Company....702
Plumbing & Heating Trade Journal....201
Preferred Utilities Manufacturing Corporation....610-611
Shell Eastern Petroleum Products, Inc....301
Silent Glow Oil Burner Corporation....104-105-106-107
Sinclair Refining Company....614
Standard Oil Company of New York....314
Taco Heaters, Incorporated....604
Thrush & Company, H. A....605
Timken Silent Automatic Company....108-109-208-209
Tuthill Pump Company....808
Viking Pump Company....712
Wagner Electric Company....214
Watts Regulator Company....413
Wayne Oil Burner Corporation....103-203
Webster Electric Company....404-405
Westinghouse Electric and Manufacturing Company....513-514
Wood Hydraulic Hoist & Body Co....101-102
York Oil Burner Company, Incorporated....708-709
Hotstream Heater Company....810
Super Automatic Burner Company....601
Somerville Iron Works....802
Holtzer-Cabot Electric Company....809
Reif-Rexod, Inc....803
Carter-Korth Oil Burners....804

Oil Burner Code Authority Issues Report of Progress

A selected group of violations of the Code of Fair Competition for the Oil Burner Industry have been referred to the Administrator's office in Washington to enforce compliance according to the procedure that has been developed by the NRA, it was recently announced by the Oil Burner Code Authority in New York.

These cases, it was explained, are in various stages, ranging from a compliance action through the Deputy Administrator's office to the preparation of action by the legal division of the enforcement section of NRA to carry out enforcement procedure provided for in the National Industrial Recovery Act.

All of these may be regarded as test cases having no precedent thus far. Consequently, it was stated, action on these may be relatively slow but once the principles incident to them are established, future cases of a similar nature will be handled with considerably more facility.

General trade practice violations handled by the Code Authority up to the middle of February total 224 cases, 207 of which have been satisfactorily adjusted and compliance obtained. Seventeen cases remain pending while 137 cases have been given interpretation with respect to labor, prices, levies, etc. Sixteen cases, where companies have applied for exemption to operate under another code, have also been adjusted, bringing the total number of cases handled to 377.

In the matter of inter-industry competitive practices, and particularly those practices during the past year on the part of certain utilities in the Chicago area, the Code Authority, on behalf of the oil burner industry, played a signal part in bringing about further consideration of the Natural Gas Code in the matter of inclusion of fair trade practice regulations which that Code, as originally presented at public hearing, did not contain.

Announcement was made that 247 area governors have been appointed and are now working actively under the plan for decentralized administration. An additional 30 code meetings were held during latter January and early February, bringing the total number of meetings up to 149.

Territories in which these meetings were held include: Brooklyn, Rochester County, Long Island, Albany and Schenectady, Syracuse, Rochester, Utica and Buffalo in New York State; Boston, Springfield and Worcester in Massachusetts; Newark and Paterson in New Jersey; Philadelphia in Pennsylvania; Hartford and New Haven in Connecticut; Indianapolis in Indiana; Chicago in Illinois; Baltimore in Maryland; Washington, D. C.; Milwaukee and Madison in Wisconsin; St. Louis and Kansas City in Missouri; Seattle in Washington; San Francisco, California; Minneapolis, St. Paul, Minnesota; Portland, Oregon; Marshalltown and Des Moines in Iowa; Omaha, Nebraska; Denver, Colorado; Providence, R. I., and Toledo, Ohio.

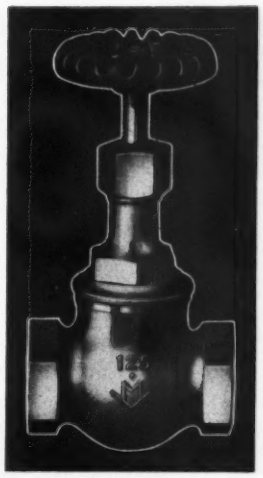
Price revisions filed with the Code Authority by manufacturers in code classifications 1, 2 and 3 now total 34 and in class 4 the total is 30. Dealer price revisions now number more than 300, it was stated.

The area governors appointed are as follows:

Area Governors Appointed by the Oil Burner Code Authority, Inc.

Name of Governor		Business Location	Area No.	Name of Retail Outlet
John W. West	*Ch.*	Portland, Me.	5	East. Oil Equip. Inc.
M. S. Westervelt		Portland, Me.	5	Community Oil Co.
E. A. Taber		Portland, Me.	5	Ballard Oil&Equip. Co.
Edward T. Allen		Portland, Me.	5	Gould-Farmer Co.
A. O. Halverson		Portland, Me.	5	Halverson Bros.
John W. Scott	*Ch.*	Boston, Mass.	10	Buckley & Scott, Inc.
F. N. Beckwith (Sec'y of Area Governors)		Boston, Mass.	10	
Don J. Edwards		Boston, Mass.	10	Gen. Heat & Appli.
James F. McCoubrey		Boston, Mass.	10	G. L. Clift Co.
F. T. Johnson		Boston, Mass.	10	Petroleum H. & P. Co.
J. J. Kelley		Boston, Mass.	10	A. H. Ballard, Inc.
Arthur W. Nelson	*Ch.*	Brockton, Mass.	11	Brockton Oil Ht. Inc.
Harry Wilson	*Ch.*	Worcester, Mass.	16	Nu-Way Oil Bur. Co.
E. C. Erickson		Worcester, Mass.	16	O. G. Hedlund Coal Co.
C. A. Leander		Worcester, Mass.	16	C. A. Leander, Inc.
M. S. McMahon		Worcester, Mass.	16	M. S. McMahon Plb. & Htg.
E. J. FitzGibbon		Gardner, Mass.	16	Royal Steam Ht. Co.
Geo. B. Church	*Ch.*	Springfield, Mass.	17	Oil Ht. Service Inc.
K. R. W. Laybourn		Springfield, Mass.	17	TimkenSilentAuto.Co.

Name of Governor		Business Location	Area No.	Name of Retail Outlet
Ward L. Miller		Northampton, Mass.	17	Ward Miller
Wm. W. Murphy		Springfield, Mass.	17	Nu-Way O. B. Co.
Bernard J. Taft		Holyoke, Mass.	17	Taft Oil Co.
Alfred Buckley	*Ch.*	Providence, R. I.	23	Buckley & Scott, Inc.
Joseph Lawton		Providence, R. I.	23	Pa. Petrol. Prdts. Co.
Geo. E. Maynard		Providence, R. I.	23	TimkenSilentAuto.Co.
J. J. Gill		Providence, R. I.	23	Petrol. Ht. & Power
Sylva E. Choquette		Providence, R. I.	23	Good Housekeeping Shops
H. H. Parsons	*Ch.*	Hartford, Conn.	26	TimkenSilentAuto.Co.
Samuel J. Little		Manchester, Conn.	26	Johnson & Little
Geo. C. Smith		Hartford, Conn.	26	Silent Glow
Julius Feinberg		New Britain, Conn.	26	Engineer'g Serv. Inc.
Dennis C. Redden		W. Hartford, Conn.	26	Capital Oil Htg. Co.
Harold L. Schultz,	*Ch.*	Syracuse, N. Y.	37	Schultz Appliance Cp.
Jos. M. Cooper		Syracuse, N. Y.	37	J. M. & C. B. Cooper
E. W. Zimmerman		Syracuse, N. Y.	37	Trump Corporation
Heber W. Goff		Syracuse, N. Y.	37	Wm. J. Goff & Son
Geo. W. Boysen		Syracuse, N. Y.	37	Boysen Bros.
Geo. A. Draude	*Ch.*	Rochester, N. Y.	40	Howe & Bassett Co.
John H. Laube		Rochester, N. Y.	40	Laube Elec. Corp.
Harry Vonhof		Rochester, N. Y.	40	H. Siebert Sons, Inc.
Geo. E. Barker		Rochester, N. Y.	40	Htg. Supply Co.
L. F. Williams		Rochester, N. Y.	40	Delco Appliance
Lionel L. Jacobs	*Ch.*	Paterson, N. J.	43	Electrol of N.J., Inc.
H. A. Tiffany		Ridgewood, N. J.	43	Tiffany Sales Co.
Allan K. Tatum		Hackensack, N. J.	43	TimkenSilentAuto.Co.
Frank Bauer		Englewood, N. J.	43	Frank Bauer, Prop.
Geo. Archbold		Paterson, N. J.	43	Marland Co.
L. C. Smyth	*Ch.*	Montclair, N. J.	44	Smyth Sales Corp.
J. A. Blauss (Sec'y of Area Governors)		Summit, N. J.	44	Petro Summit Oil Burner Co.
I. C. Williams		Rahway, N. J.	44	Williams Elec. Co.
Earl E. Adams		Maplewood, N. J.	44	Modern Necessities Co.
J. M. McDonald		Summit, N. J.	44	Stephens Miller Co.
E. H. Weeks		Elizabeth, N. J.	44	Holmes-Wirth Co. Inc.
W. M. Hedden		Dover, N. J.	44	The Hedden Co.
J. C. Kleinhans		Elizabeth, N. J.	44	Henry Kleinhans, Inc.
Amos J. Passino		Union City, N. J.	44	Oil Appliances Co.
L. O. Ford		East Orange, N. J.	44	TimkenSilentAuto.Co.
H. L. Rubel		Newark, N. J.	44	Rubel & Jensen, Inc.
M. M. Oppenheimer	*Ch.*	Baltimore, Md.	50	Oil Heat, Inc.
T. E. Carson		Baltimore, Md.	50	Sherwood Bros. Inc.
G. H. Eser		Baltimore, Md.	50	Hoschild-Kohn & Co.
Chas. I. Weiller		Baltimore, Md.	50	Automat. Burner Crp.
C. W. Cornelssen		Baltimore, Md.	50	May Oil Burner Corp.
William Conradis	*Ch.*	Washington, D. C.	51	Wm. Conradis Co. Inc.
Thomas A. Walsh		Washington, D. C.	51	ABC Oil Burner Co.
W. H. Gottlieb		Washington, D. C.	51	Domestic Serv. Corp.
R. E. Carson		Washington, D. C.	51	Sherwood Bros. Inc.
Edw. H. Hosford	*Ch.*	Philadelphia, Pa.	56	TimkenSilentAuto.Co.
Robt. P. Johnson		Philadelphia, Pa.	56	S. T. Johnson Co.
M. Helmus		Philadelphia, Pa.	56	Gen'l Util. Corp.
D. M. Trilling		Philadelphia, Pa.	56	Trilling & Montague
T. H. Lewis		Philadelphia, Pa.	56	Elliott-Lewis Co.
Dennis Dalton	*Ch.*	Indianapolis, Ind.	201	Edison Corp.
James S. Milligan		Indianapolis, Ind.	201	Milligan O. B. Corp.
M. D. Mulrey		Indianapolis, Ind.	201	T. A. Mulrey & Son
W. A. Steinhilber		Indianapolis, Ind.	201	Central Supply Co.
J. R. Pfrommer		Indianapolis, Ind.	201	Pfrommer Bros.
Dayle G. Malone	*Ch.*	Chicago, Ill.	205	Petro-Nokol Co.
James L. L. McCormack		Chicago, Ill.	205	Hardinge O. B. Co.
J. Harvey Manny		Chicago, Ill.	205	Robinson Furnace Co.
F. C. Staples		Chicago, Ill.	205	Johnson O. B. Co.
Jos. W. Manny		Chicago, Ill.	205	Davies Supply Co.
A. K. Perege	*Ch.*	Milwaukee, Wis.	220	Perego Corp.
H. L. Ashworth (Sec'y of Area Governors)		Milwaukee, Wis.	220	
C. W. Pansch		Racine, Wis.	220	C. W. Pansch
J. S. Anderson		Milwaukee, Wis.	220	May Oil Burner Sales
Scranton H. Gregg		Milwaukee, Wis.	220	Shellenberger-Gregg
Thos. L. Ahern		Fond du Lac, Wis.	220	John F. Ahern
W. F. Bakke	*Ch.*	Madison, Wis.	221	W. F. Bakke
J. C. Westmont		Madison, Wis.	221	Wis. Truck Equip.
W. H. Feirn		Madison, Wis.	221	C. A. Hooper Co.
R. T. Royston		Madison, Wis.	221	R. T. Royston Plbg. & Htg.
Robert J. Nickles		Madison, Wis.	221	R. J. Nickles
Ray S. Porter	*Ch.*	Minneapolis, Minn.	225	Bellen Porter Co.
S. E. Stenson		Minneapolis, Minn.	225	The Stenson Co.
Charles G. Sigwald		Minneapolis, Minn.	225	Sigwald Eng. Corp.
W. H. Campbell		Minneapolis, Minn.	225	Campbell Machine Co.
John E. Hartigan		St. Paul, Minn.	225	Automat. Oil Heat Co.
A. Jack Becker	*Ch.*	St. Louis, Mo.	236	Becker-Marsden Co.
Glenn C. Hill, Jr.		St. Louis, Mo.	236	Oil Heat, Inc.



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. . . . . or should we say "A Tribute to the Nation's Leading Jobbers . . . ?"

The Progress of Milwaukee Valve Company is so dependent on jobber cooperation . . . because all "Milwaukee" products are sold through representative jobbers . . . that any reference to past development and growth must needs be a tribute to "Milwaukee" Distributors.

The "Milwaukee" Policy of Progress so involves the jobber that every inquiry for "Milwaukee" products, regardless of size or type, may be readily handled by your nearest "Milwaukee" Distributor.

Fifty "Milwaukee" Heating Specialists, located all over the United States, render a willing, cooperative service to jobbers and contractors. This service has earned many hundreds of thousands of dollars in actual business and has proven invaluable to all who have availed themselves of it.

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MILWAUKEE VALVE COMPANY

Milwaukee, Wisconsin

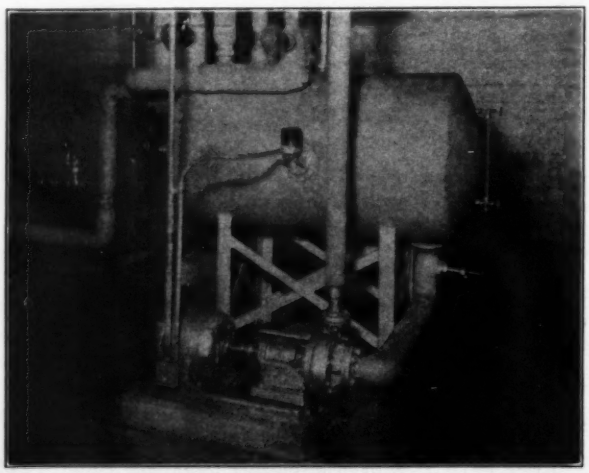
Manufacturers of

"Milwaukee" Heating Specialties
"Approved" Bronze Valves
"Milwaukee" Valves and Fittings for the Oil Industry

Name of Governor		Business Location	Area No.	Name of Retail Outlet
L. S. Ragsdale		University City, Mo.	236	L. S. Ragsdale, Inc.
C. E. Wilson		St. Louis, Mo.	236	C. E. Wilson, Inc.
Wm. H. Oakes		Richmond Hgts., Mo.	236	TimkenSilentAuto.Co.
F. G. Martin		New Haven, Conn.	27	Martin Htg. & Eng.
Leo Setlow		New Haven, Conn.	27	Ideal Plbg. & Htg.
Charles Bendix	*Ch.*	Rockville Centre, N. Y.	30	Electrol Nassau Crp.
A. F. Van En		Freeport, N. Y.	30	Alpha Utilities, Inc.
C. E. Harstrom		Hempstead, N. Y.	30	TimkenSilentAuto.Co.
N. H. Vanderwall		Port Washington, N. Y.	30	N. H. Vanderwall-Dlr.
Paul Lieblich		Northport, N. Y.	30	Paul Lieblich
A. G. Baerenklau	*Ch.*	Brooklyn, N. Y.	31	Baerenklau & Co.
Harry L. Bloomberg		Brooklyn, N. Y.	31	Bklyn. Cornell Util.
Harry Epstein		Brooklyn, N. Y.	31	Kleen Ht. Sales Crp.
Charles R. Kahn		Jamaica, N. Y.	31	Queens Petro. Co. Inc.
Max Kasner		Brooklyn, N. Y.	31	Bklyn. Electrol. Co.
Hans Lieblich	*Ch.*	New York City	32	Hans Lieblich & Co.
Thos. R. Evans		New York City	32	TimkenSilentAuto.Co.
J. S. Kaplan		New York City	32	Preferred Util. Co.
Otto Peterson		New York City	32	N. Y. Oil B. Co. Inc.
R. J. Kelleher		New York City	32	Gen'l Auto. Ht. Inc.
John Bloomberg	*Ch.*	New Rochelle, N. Y.	34	Westchester Auto. Ht.
Anthony W. Reis		New Rochelle, N. Y.	34	TimkenSilentAuto.Co.
T. E. Larkin	*Ch.*	Watervliet, N. Y.	36	Larkin Ht. & Fuel Co.
Morton G. Marks		Albany, N. Y.	36	Albany Eng. & Sales Co.
Harry C. Stants		Schenectady, N. Y.	36	Schenectady Eng. & Sales
C. H. Tracy		Schenectady, N. Y.	36	Oil Heating Co.
H. F. Lewis		Albany, N. Y.	36	Harvey A. Dwight Oil Ht. & Sup. Co.
A. J. Hahn	*Ch.*	Utica, N. Y.	36-A	Utica Oil Htg. Corp.
A. F. De Rosa		Utica, N. Y.	36-A	DeRosa Heating Co.
Frank Burgess		Utica, N. Y.	36-A	Burgess Oil Htg. Crp.
Robert E. Malone		Little Falls, N. Y.	36-A	Robert E. Malone
H. A. Conway	*Ch.*	Kansas City, Mo.	244	Christensen-Conway Burner Co., Inc.
N. E. Tyrrell		Kansas City, Mo.	244	N. E. Tyrrell
A. H. Telgemeier		Kansas City, Mo.	244	Nokol Auto. O.B.Co.
J. D. Wood		Kansas City, Mo.	244	Plass Engineer'g Co.
E. W. Mahan		Kansas City, Mo.	244	Peerless O. B. Co.
H. W. Eller	*Ch.*	Omaha, Nebr.	249	Petrol. Utilities Co.
Jas. W. Hauley		Omaha, Nebr.	249	Updike Lbr.&Coal Co.
W. M. Bennett		Omaha, Nebr.	249	Bennett Co.
Hollis M. Johnson		Omaha, Nebr.	249	Amer. Appliance Co.
Jas. R. Terry		Omaha, Nebr.	249	Hotentot Sales Co.
Jos. Fiduccia, Sr.	*Ch.*	New Orleans, La.	262	Kleen-Heet O. B. Co.
Leander Marx		New Orleans, La.	262	Amer. Ht. & Plb. Co.
L. W. Meherin		New Orleans, La.	262	ABC O. B. & Ht. Co.
E. A. Smith		New Orleans, La.	262	O. B. Sales & Service Co.
R. K. Rothrock		New Orleans, La.	262	R. K. Rothrock, Prop.
B. F. Holman	*Ch.*	Portland, Ore.	393	Holman Fuel Co.
H. H. Norquist		Portland, Ore.	393	Campbell-Norquist Co.
F. C. Ross		Portland, Ore.	393	Power Plant Eng. Co.
C. T. Mudge		Portland, Ore.	393	C. T. Mudge Co. Inc.
A. Michaels		Portland, Ore.	393	Pacific Century Co.
J. C. Johnson	*Ch.*	Oakland, Calif.	400	S. T. Johnson Co.
Ernest A. Cornely		Burlingame, Calif.	400	E. A. Cornely, Inc.
Samuel H. Cook		Petaluma, Calif.	400	Petaluma O. B. Co.
B. B. Stern		Burlingame, Calif.	400	B. B. Stern Co.
A. C. Presley		Sacramento, Calif.	400	Rotary O. B. Co.

Caloroil Burner Division Now Separate Company

The Caloroil Burner Division of the Silent Glow Oil Burner Corporation of Hartford, Conn., has been separated from this concern and will now be known as the Caloroil Burner Corporation and will be located in Hartford, Conn. The new company will handle not only Caloroil burners, but also Victory wall-flame burners, burner-boiler units, and Crescent burners. The incorporators of the Caloroil Burner Corporation are: A. L. Shipman, Jr., C. B. Cook and M. J. Binkley.



Typical Ames Condensate Pump and Receiver installation. Note Ames Vacuum Heating Pump Unit in left background.

AMES PUMP COMPANY, INC.
30 CHURCH STREET • NEW YORK, N. Y.

Manufacturers of vacuum heating, condensate, centrifugal pumps, and fuel oil pumping-heating units

Division of American Locomotive Company
Representatives in all principal cities. Products manufactured and sold in Canada by Montreal Locomotive Works, Ltd.

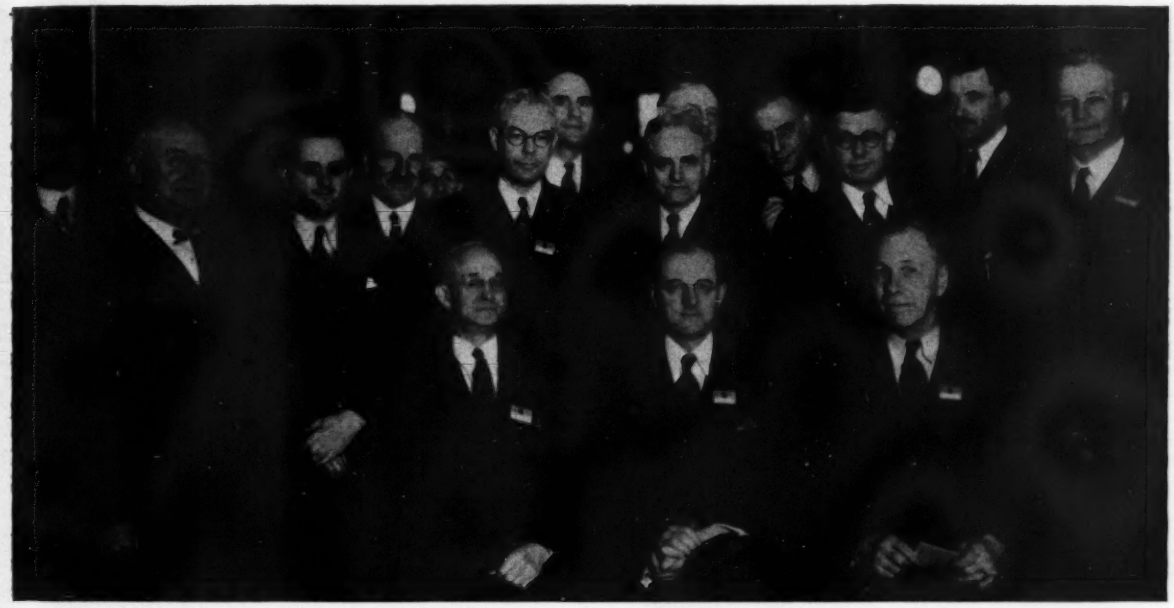
AMES CONDENSATE PUMPS

Ames Automatically Controlled Condensate Pumps return condensate to the boiler at **205° F.**

In this way, a material saving in boiler feedwater and fuel can be effected and valuable economies realized.

The compact design and construction of Ames Condensate Pumps and Receivers, together with their guaranteed performance, combine to make a quality unit difficult to excel.

Price is commensurate with quality.



At 40th annual meeting of American Society of Heating and Ventilating Engineers. Seated, C. V. Haynes, newly elected president; W. T. Jones, retiring president and John Howatt, first vice president. Standing, left to right, Charles F. Roth, exposition manager; J. D. Cassell; Roswell Farnham; W. H. Driscoll, past president; R. H. Carpenter; F. C. McIntosh; E. K. Campbell; G. L. Larson, second vice president; E. H. Gurney; D. S. Boyden, treasurer; J. F. McIntire and F. E. Giesecke.

A. S. H. V. E. Holds Successful Meeting

Haynes Is President—Exposition Draws Big Crowd

THE American Society of Heating and Ventilating Engineers in its fortieth annual meeting, held at New York on February 5 to 9, recorded another successful gathering. A good attendance and an interesting program coupled with the third international exposition of heating and ventilating equipment and the big crowds it attracted sums up the highlights of the meeting.

Under the leadership of President W. T. Jones, the Society had carried on through an eventful year winding up with this satisfactory annual meeting. The work of the Society, its program and the mounting interest in air conditioning all contributed to this record.

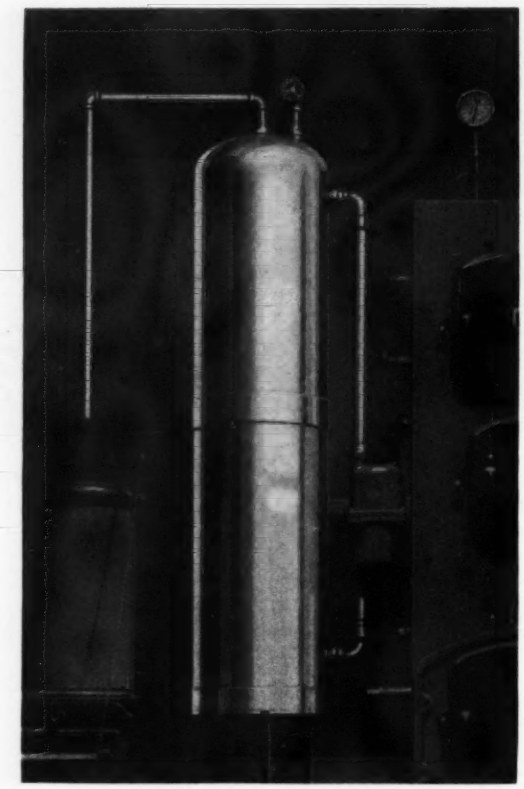
In choosing its officers for this coming year, the members elected Charles V. Haynes, Philadelphia, president;

Officers, members and guests at annual banquet of A. S. H. V. E.

BROWN & BROTHERS

Seamless Drawn

COPPER RANGE BOILER



It's a boiler worth pushing

because

it's a boiler that will sell

Copper needs no selling talk to the man planning to buy a range boiler. If he has the price, he'll pay.

But he'll be even more interested if he knows about the Brown & Brothers Boiler and about its method of construction. He will like the absence of longitudinal seams and of riveted heads. He will like the way the piping is connected. He will feel safer with the heavy copper seamless shell.

It does not take an expert to realize that this well-known boiler is an excellent buy. Your customers will realize it if they are advised of its advantages.

• • •

Brown & Brothers Seamless Drawn Copper Range Boilers are now being made and sold by Badger of Boston.

E. B. BADGER & SONS CO.

75 PITTS STREET
BOSTON, MASS.

271 MADISON AVENUE
NEW YORK, N. Y.

John Howatt, Chicago, first vice president; G. L. Larson, Madison, Wisc., second vice president; D. S. Boyden, Boston, treasurer and A. V. Hutchinson, New York, secretary. Mr. Haynes becomes chairman of the council with M. C. Beaman, W. A. Russell, O. W. Ott, W. T. Jones and E. Holt Gurney as members for three years; R. H. Carpenter, J. D. Cassell, F. C. McIntosh and L. Walter Moon as members for two years and F. E Giesecke, Albert Buenger, J. F. McIntire and W. E. Stark as members for one year.

The program provided a well balanced review of engineering progress in the heating and ventilating field. Reports of research investigations and of developments in the related fields of heating and of air conditioning united to interest members and visitors. One paper "Low-Cost Air Conditioning for a Small Residence" by M. K. Drewry was reprinted in DOMESTIC ENGINEERING in February while a second "Comfort Cooling with Attic Ventilating Fans" by G. B. Helmrich and G. H. Tuttle appears on a preceding page of this issue.

The exposition, which has become a biennial feature of the A. S. H. V. E. annual meetings, was well attended and attracted a significant group of exhibitors. In spite of weather conditions—marked on one day by an all-time cold weather record for New York with 14.3 degrees below zero—the attendance in the six days was 54,000. It was an interested group of visitors, attracted by the widespread attention which is being given to air conditioning.

A significant comment on the exposition and the attendance was that the public has undoubtedly been stirred by the interest in air conditioning to a realization that its present standards of home comfort are inadequate. By creating dissatisfaction with present equipment, the first great obstacle to an expanded market for automatic heat and air conditioning products, has been successfully overcome.

The exhibitors, a list of whom was published in our last issue, displayed products designed to provide a complete heating and air conditioning service. Engineering developments have been carried on in many laboratories during the past several years and exhibitors were anxious to show the results which the visitors in turn were anxious to inspect.

The New York chapter in charge of the arrangements for the meeting is headed by H. L. Alt. H. W. Fiedler is vice president, T. W. Reynolds, secretary, and W. M. Heebner is treasurer. The board of governors includes A. F. Hinrichsen, S. A. S. Paterno and W. W. Timmis. The committees on arrangements included Arthur Ritter, general chairman: Finance—F. E. W. Beebe. Chairman; J. B. Hashagen and W. M. Heebner. Banquet—H. B. Hedges, Chairman, Russell Donnelly, Walter Heibel, A. J. Offner and E. J. Ritchie. Reception—W. W. Timmis, Chairman; E. A. Bennett, F. B. Campbell, M. E. Durkee, H. B. Eells, Margaret Ingels, H. G. Meinke, G. E. Olsen, W. F. Rainger, Louis Hament, H. T. Richardson, E. J. Ritchie and E. S. White. Entertainment—Alfred Engle, Chairman; F. B. Campbell, H. W. Fiedler and C. H. Quirk. Ladies—C. S. Hoffman, Chairman; C. R. Place, Mrs. C. S. Hoffman and Mrs. C. R. Place. Radio City Inspection Trip—W. L. Keplinger, Chairman, and C. S. Hoffman, Vice-Chairman. Publicity—R. B. Purdy, Chairman, and Clifford Strock.

Discuss Plan for Blanket Heating Code

Manufacturers of heating, ventilating and air conditioning equipment met in New York on February 9. Beverly S. King, assistant deputy administrator from the NRA office at Washington, discussed a plan for a basic code embracing all branches of the industry. Methods of applying present codes to particular branches and of securing compliance with code provisions also were explained.

The assembled manufacturers voted in favor of making a detailed study of the proposal for a basic code. Earl Otis of the Herman Nelson Corp., Moline, Ill., was selected as temporary chairman of an organization committee, the other members of which would be code-committeemen, active in the related branches. According to Mr. King the enlarged group would represent $250,000,000 in invested capital, $200,000,000 in sales and include 300 or more companies with 40,000 to 50,000 employes. It was felt that with many problems in common, a blanket code would make for economy.

Plan Kitchen Sales At Gas Meeting

The Mid-West Regional Gas Sales Council held a two-day conference in Chicago on Feb. 15 and 16, under the sponsorship of the commercial section of the American Gas Association. While principally attracting utility men, the conference was attended by some dealers and manufacturers of gas appliances.

The subject of kitchen modernization was actively discussed, reflecting the increased sales efforts which both the gas and electrical industries as well as many manufacturers are making to secure business in this comparatively undeveloped market. "Water Heating Sales through Upstairs Controls" was discussed by J. D. Druse of the Milwaukee Gas Light Co., Milwaukee, Wis., and by Thomas E. Grant of the American Gas Products Corp., Chicago. Forced air heating, space heating and heating sales campaigns in the Chicago district also were discussed.

Minneapolis-Honeywell Brings Home Office to Field Force

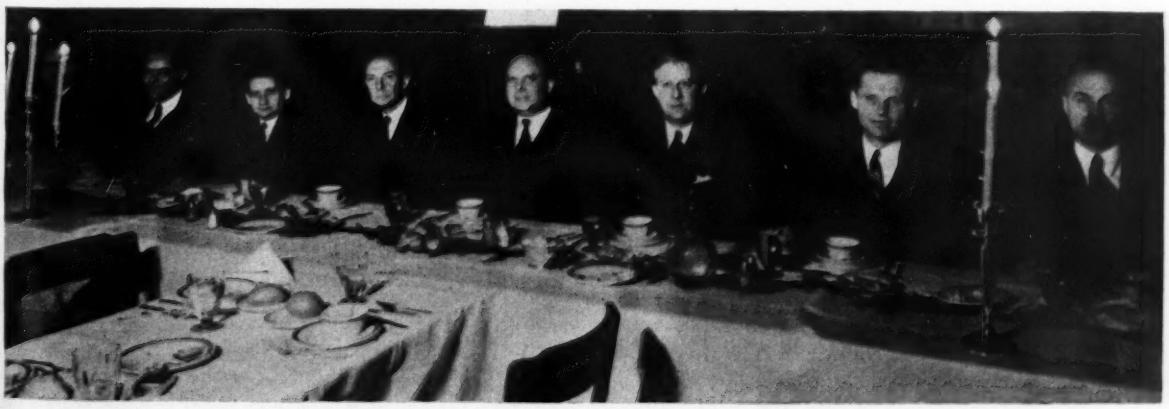
Beginning a series of field clinics at Chicago, January 24, the Minneapolis-Honeywell Regulator Company launched a novel program of meetings with its field men, engineers and officials throughout the national territory. In so doing, the company has reversed the usual procedure by bringing the home office to the field force, rather than the field force to the home office.

Designated as field clinics, the gatherings embodied not only sales conferences but also engineering discussions and genuine clinics on trends in the heating and air conditioning and processing field, with reports on improvements and new developments and projects.

The Chicago clinic inaugurated a series of five such meetings, each occupying two days. The remaining four clinics were conducted in Toronto, Boston, Philadelphia and New York.

The company anticipates a greatly increased volume of sales in 1934, C. B. Sweatt, vice president in charge of sales, told the closing session of the field clinic at New York. The 1933 business recorded an increase in excess of 23 percent over 1932, in the face of generally unfavorable business conditions. Mr. Sweatt based his prediction on several factors: First, a greatly improved buying interest on the part of the public; second, the tremendously increased interest of the public in both temperature control and air conditioning; third, upon the great variety of automatic controls now manufactured by the Minneapolis-Honeywell Regulator Company, significant developments including automatic controls for air conditioning and increased volume in sales of the modutrol system for large space heating. This field is showing unusual activity because of modernization programs in large buildings and in homes, and because of the construction of many schools and public buildings under government aid.

This series of conferences is calculated to bring the "factory to the field," not only from a sales angle but from an engineering and manufacturing standpoint, making it possible for every member of the field force to become acquainted with trends in the heat control industry.



Members of the executive and engineering staffs of the Minneapolis-Honeywell Regulator Co. Left to right are: A. H. Lockrae, original equipment division; George D. Kingsland, Modutrol systems division; C. E. Sweatt, vice president and general sales manager; M. C. Honeywell, president; W. G. Jennings, vice president in charge of Chicago office; W. L. Huff, treasurer; C. C. Buckland, secretary; R. L. Goetzenberger, industrial process division

Sales Suggestions for the Dealer

A Symposium

WITH the publication of this issue, we are entering the last half of the first quarter of 1934. By this time most of our readers should have a fairly definite idea as to what their special plans and activities should be for the balance of the year, in going after their share of the business which, inevitably will be done or which can be promoted.

While it is important to chart and plan your business course a number of months in advance, it is equally important to make it sufficiently flexible to take into account the influence of new ideas, new methods and new developments in equipment.

In the last issue, we carried suggestions for automatic heat and air conditioning dealers which were secured from executives who have both planned new products and new methods of selling them. They were secured in order to put before our readers some brief but practical ideas for securing their share of this rapidly developing market.

This issue, we offer additional ideas from additional executives. They are particularly appropriate at this time because of the convention and exposition of the American Oil Burner Association with the new ideas and developments it will bring out, during the first week of March, in Philadelphia.

"Air conditioning dealers in 1934 have the greatest opportunity anyone in business has had since 1925."

"Since the beginning of the oil burner industry its members have been accustomed to talk of seasonal slumps, and all of their merchandising activity has been predicated upon this condition, according to D. M. Frank of Williams Oil-O-Matic Heating Corporation, Bloomington, Illinois.

"Our officials and dealers are as one in declaring that their main weapon in combating the seasonal slump is the oil water heater. Hot water in homes and buildings of all types is a year-round requirement. The water heater is the incentive which our dealers have needed to build up a year-round sales organization. With this incentive supplied, selling activity twelve months of the year is bound to make itself evident in results."

E. J. Opal, air conditioning department, General Electric, New York City, says: "Air conditioning dealers in 1934 have the greatest opportunity anyone in business has had since 1925. All phases of winter air conditioning and summer air conditioning are coming into their own in volume sales, for the first time, in 1934. In 1933, the Federal Government set an example when it appropriated millions to spend. In 1934, this example will be followed by millions of people when they will purchase comfort items for their homes.

"The suggestion I offer is that these people who are considering taking on a line of complete air conditioning products do not delay, but do so immediately. To those who have a complete line now, I recommend and urge strongly that they call on everyone they have sold anything to or done work for and explain to them the importance of purchasing the one or more pieces of air conditioning equipment most needed in their homes.

"The modernization program, as outlined by the Government, will assist in no small measure. The publicity air conditioning is receiving throughout the country is another factor which will aid anyone entering the air conditioning business.

"Spending habits are returning and those who have new things to offer will benefit to a high degree. An organization handling complete year-round air conditioning equipment offers the public something by way of contributing to the comfort, happiness and welfare of the home never before existing.

"Those who are in this line of business now are most fortunate. As the industry is taking on its first real momentum, those who take advantage of the opportunity to get into this business, also are fortunate."

"To our way of thinking," says Paul K. Adams of Fitzgibbons Boiler Company, New York City, "the live dealer in automatic heating and air conditioning equipment will have to look for his market in 1934. Prime success of this type of dealer in the past has been due to his searching qualities rather than his waiting qualities. His ability to get out and literally go from door to door inquiring as to the heating and ventilating needs of his neighbors has brought to him the volume of business which he has continued to enjoy throughout a period in which many other dealers of similar equipment found the pickings very scarce.

"The dealer's telephone number in the local directory is not sufficient for his securing a share of the business. In our contacts with various types of heating an air conditioning dealers throughout the United States, we have invariably found that those who made a success of their work were the ones who followed the principle outlined above. It was a question of merchandising rather than order taking, and the manufacturer who has provided his dealers with a product which can be readily merchandised has gone a long way towards assisting him in building up this type of procedure.

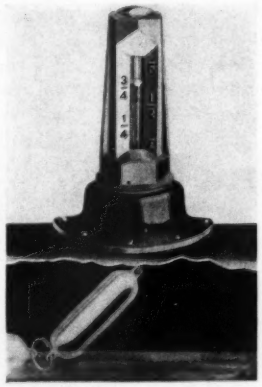
"In the two brief paragraphs above we express what is believed to be the sound principle for 1934 business.

The work is there, somebody is getting it and there is no reason why any dealer in this type of equipment cannot secure profits for himself during the months to come."

New Sales Helps for the Dealer

A Liquid Level Guage

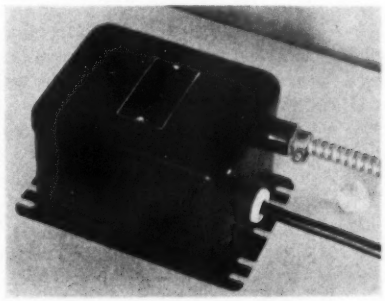
Here is a liquid level gauge which just recently has been placed on the market for providing a unit capable of being installed with the tank either full or empty. It is operated by the weight of that portion of a string of hollow metal floats not supported by the liquid in the tank. Variation in fuel level by varying the unsupported weight changes the location of an indicator supported by



a spring in a glass sight tube. The location of this indicator with reference to either one of the two scales on the gauge body plainly shows the amount of fuel in the tank. It is pointed out that the gauge is actuated by unsupported weight and that a gauge in a given size tank will record with equal accuracy any specific gravity of liquid. Also it is stated that this accuracy will not be affected by temperature or pressure variations. Gauges are stocked for vertical dimensions of either 27 in. or 42 in. Detroit Lubricator Company, located at Trumbull, Lincoln, Marquette and Viaduct, Detroit, Michigan, is the manufacturer.

Transformer for Oil Burners

Here is an ignition transformer for oil burners which is described as having been placed on the market to provide a shock-proof installation. It has detachable high-voltage terminals with leads for direct connection to the burner electrode assembly. This new transformer is described as being not only balanced electrostatically, itself, but in addition, is designed to make easy the installation of the remainder of the high-voltage ignition circuit with practically perfect electrostatic balance. Under this condition, radio-frequency oscillations generated by the spark do not enter the primary supply lines, but pass directly to the ground through the neutral connection. Balancing of the circuit also is designed to reduce considerably the stress on the transformer insulation caused by the radio frequency voltage which might otherwise be detrimental. These transformers are available in either 10,000 volts or 12,000 volts, the former being designed to meet all normal requirements



of oil burner ignition and the latter the most severe requirements such as burners which use heavy grades of fuel. General Electric Company, located at 1 River Road, Schenectady, N. Y., is the manufacturer.

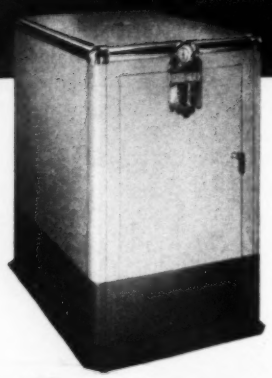
Electric Heater For Oil Burner

An automatic electric heater just recently has been placed on the market for use in connection with oil burners. It has been designed specifically for raising the temperature of number 6 fuel oil to the desired point, as it is admitted to the oil burner. It is furnished complete for electric-gas ignition or for straight gas ignition with full automatic operation. Either type is used with a preheated storage tank or when heavy

DELCO SCORES AGAIN!

PLUMBING AND HEATING CONTRACTORS ENTHUSIASTIC ABOUT NEW HARMONIZED

Delco Heat Boiler



No wonder last month's announcement of the new, harmonized Delco Heat Boiler shattered all-time inquiry records from heating and plumbing contractors.

For here is something that answers their demands *perfectly*. The Delco Heat Boiler is new, different, more efficient; yet basically follows the accepted updraft design . . . thoroughly understood by the heating trade for 40 years. The way in which Delco engineers have harmonized the super-heat-producing qualities of the Delco Heat oil burner with a super-heat-absorbing boiler and domestic hot-water system is amazing, say leading heating contractors.

Yes, here is a real profit opportunity for plumbing and heating dealers. You owe it to yourself to get all the facts . . . the complete details on this remarkable new Delco Heat Boiler. And get the facts about the fast-selling Delco Heat oil burner and the profit-making opportunity of the exclusive Delco Heat franchise in your territory.

Send the coupon today for complete details.

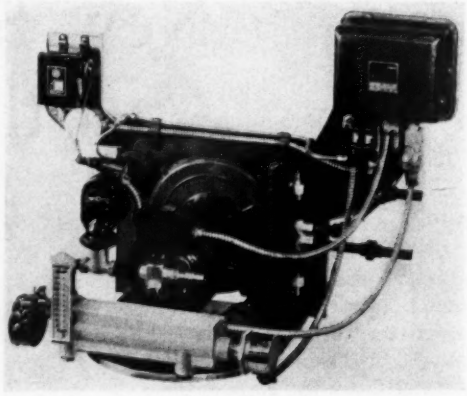
DELCO HEAT BOILER

A GENERAL MOTORS VALUE

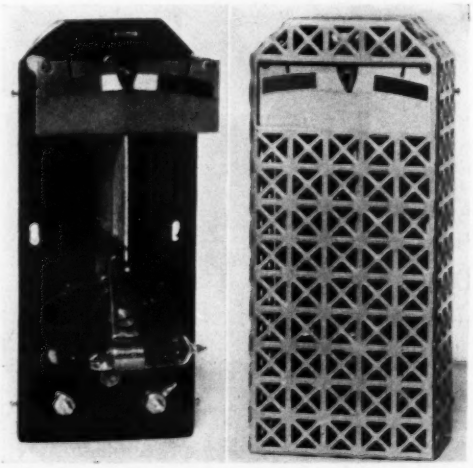
Also a Complete line of Delco Heat Oil Burners

Delco Appliance Corporation, Subsidiary of General Motors,
Dept. B-211, Rochester, N. Y.
Please send complete details on the Delco Heat dealer franchise.
Name.....
Street Address.....
City.....State.....

gravity oil is heated sufficiently to permit its being pumped to the oil burner. Oil enters the heater under pump pressure passing below, through and above the heating element before being discharged to the burner. The oil is heated to any desired temperature by an auto-



matic electric heater of the immersion type. A thermometer is attached to show the oil temperature at all times. The aquastat being connected with the oil burner prevents the system from starting until the proper oil temperature has been reached. Enterprise Oil Burner Co., located at 2902 19th St., San Francisco, Cal., is the manufacturer.



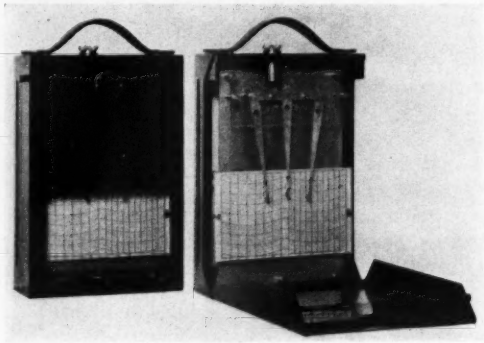
High and Low Voltage Humidity Contral

A direct current or alternating current, high or low voltage humidity control device, for air conditioning equipment has been placed on the market just recently as an improvement over former equipment. It has a 3-ampere, 115-volt mercury-tube switch which also can be used for low voltage. It is designed for wall mounting or to be mounted in a duct or an air conditioning unit. The left hand part of the accompanying illustration shows the unit with the cover removed while the

right hand part shows the cover in place. It is stated that the only work required of the hygroscopic actuating element is that of tilting the mercury tube switch which normally is in balance. Humidity Control Company, located at 303 Bernice Building, Tacoma, Washington, is the manufacturer.

Recording Instrument For Air Conditioning

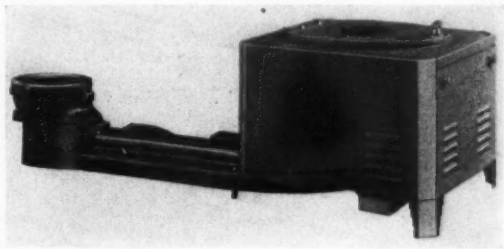
Here is a new recording instrument designed for service in the heating, ventilating, refrigeration and air conditioning fields. It is described as being easily portable and compact. The size is 8½ in. by 5½ in. by 2¼



in. The charts used are of the index file card type and are made to give clear, progressive and easily read records over 30-hour or 10-hour periods. The time lines are common to temperature, humidity and operation. A week's supply of spare charts, an ink supply and a spare pen are carried complete in the case. A leather handle and an unbreakable observation window are included with the equipment. The standard range for this equipment is from zero per cent to 100 per cent relative humidity, and from zero deg. Fahr. to 100 deg. Fahr. temperature and for loads up to 8 amps. continuous (Inrush not to exceed 30 amps.) on the operation recorder. This equipment is designed and manufactured by Julien P. Friez & Sons, Inc., Baltimore St. and Central Ave., Baltimore, Md.

Automatic Coal Burner Announced For Small Home Field

Announcement has been made of a new home-size automatic coal burner. It has been placed on the market and is rated as having a capacity of 300 lb. of coal which capacity is designed for a 24-hour run or more under extreme conditions. The unit stands 24 in. high above the floor and is described as requiring no more floor space than an electric washer. It is designed to be attractive and is finished in blue lacquer. The cabinet-like hopper also houses the operating mechanism and the electric controls. The design has been made to give full access to the fire door of any type of boiler. This unit is of the under-feed type. The air and the coal ducts are cast in one piece. The retort is described as being of special design with the idea of supplying air through the ports in such a way as to take care of the free burning coal that requires less air. Retorts are for 17-in. round or 10-in. by 15-in. rectangular fire boxes and larger. The gear chain, motor and blower are designed to afford two fuel feeding speeds. The equipment is furnished completely with thermostat, stoker switch, relay and circuit breaker. A pressure control for steam, a vapor control for vapor steam and a water temperature control for hot water heating also are available. Butler Manufacturing Company, of Kansas City, Mo., is the maker.



Winter Air Conditioning Unit

The unit shown in the accompanying illustration has been placed on the market recently for the conditioning of air in homes during the heating season. It is designed to operate in conjunction with the existing heating plant and is made to provide positive air circulation, proper humidity and to wash the air which passes through it. It has a height of 31½ in. and a width of 20½ in. and a depth of 12½ in. Maximum current consumption of 40 watts is listed for it while the variable speed rating is from 900 to 1,500 RPM. Acoustical material is used at both inlet and outlet to insure quiet operation. This unit is rated as being capable of purifying, humidifying, and circulating up to 8,400 cu. ft. of air per hour. Norge Corporation, 670 E. Woodbridge Street, Detroit, Michigan, is the manufacturer.

Humidifier is Attached to Radiator

The humidifier shown in the accompanying illustration has been placed on the market to be attached to existing

Explorers in Business

Our leading explorers are not all at Little America. The Leland research expedition has much to its credit also—having developed an ideal motor for automatic water systems, stokers, oil burners—and other appliances that require an unusually quiet drive.

This motor has a resilient mounting that *isolates motor noise and vibration* within the motor frame—and *assures definite shaft alignment* regardless of any form of thrust—highly important when the motor is direct connected.

It features a short-circuiting device capable of years and years of reliable service—also important.

It is a motor capable of handling heavy starting loads, carrying temporary overloads or withstanding stalled loads without distress—evidence of capacity and sturdiness.

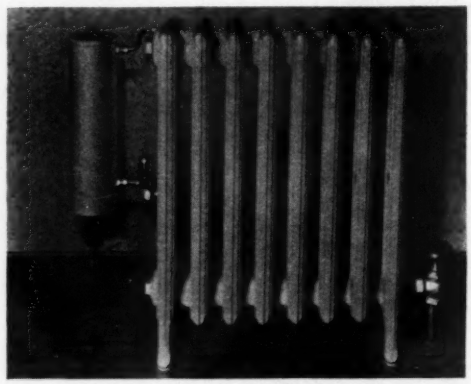
Test one of these motors—compare it with other motors. Render your own verdict.

A. C. Repulsion-Induction D. C. and Polyphase
Interchangeable frames Ratings 1/8 to 3 h. p.
Specials where required.

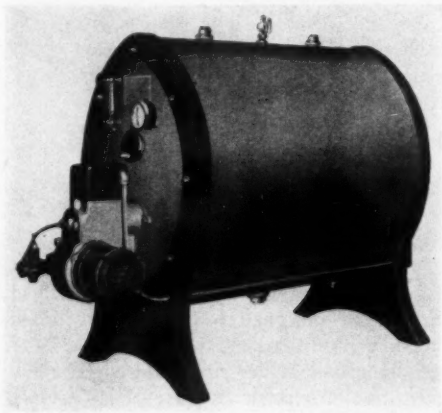
The Leland Electric Co.
DAYTON · OHIO · U·S·A
CANADIAN ADDRESS TORONTO CABLE ADDRESS LELECT

KONTAX MERCURY TUBES
Leland Motors
MERCURY TUBE CONTROLS

radiators in connection with either steam or hot water systems. This attachment is fastened to the end of the radiator so that the heating medium, either steam or hot water, will flow over a coil emersed in water, thus bringing the water near the boiling point and causing vaporization. Included in the unit is an electrical heating element that can be used as an auxiliary source of heat



for vaporization on hot water systems or steam systems when the boiler is operating with very little pressure. A cylinder surrounding the coil is filled with water manually and there is an automatic switch to turn off the electrical element should it be working when all the water evaporates. The unit can be attached by removing 2 small screw plugs from the end of the radiator and screwing the compression fittings on the humidifier into the two holes that already exist. On old style radiators that do not happen to have the holes which are found on recent models, the humidifier can be attached by tapping two holes in the end of the radiator. American Radiator Company, 40 W. 40th St., New York City, is the manufacturer.



A Boiler Burner Unit

The accompanying illustration shows a boiler burner unit which has been placed on the market. It is completely assembled at the factory with the idea of facilitating the installation. A built-in coil is included for the heating of domestic water. Century Engineering Corporation, of Cedar Rapids, Iowa, is the manufacturer.

Stokers—

(Continued from Page 84)

ment from great distances, some from remote districts on mule back, and there is no hospital within a radius of many miles.

When Mr. Blake saw the clinic, the builder was in the process of adding a lean-to in which the boiler was to be installed. An overhead hot water heating system had been proposed. There were to be approximately 15 radiators, about half of them on the second floor. Mr. Blake pointed out as a pitfall to be avoided the fact that on an overhead job, unless it was properly installed, there was a possibility of the second floor radiators robbing the first floor radiators. He stated that our layout would call for separate supply and return connections to be made to each first and second floor radiator. Such an installation would make for equalized circulation and struck a responsive chord in Dr. Howard, for he knew of another job in town where they had had just such a difficulty—the second floor occupants got all of the heat while the first floor occupants were cold. No one else had suggested that possibility to him. He was deeply grateful for the suggestion and played it up to the fullest extent with the result that he would hear of no one else having the contract for heating in the clinic building other than Mr. Blake.

This contract consisted of the furnishing and installing of a complete hot water heating system, a hot water heater and storage tank, certain insulation, and AGAIN A STOKER, for Dr. Howard was now thoroughly sold on stokers.

All in all the job ran very smoothly. There were no disastrous delays in shipment, as is often the case with out of town work, material arrived as ordered, and the men sent down to do the work did it thoroughly but in a hurry, for as they said in a letter sent back shortly after arriving in Middleton, "The biscuits are great—also the cornbread—but see that everything gets here on time so we won't be held up any, for this town is too dead to suit us."

Untouched Market—

(Continued from Page 82)

upon the quantity used, with an average cost for house heating of about 50c per thousand cubic feet.

With these facts in mind, Mr. Nurre recommends for

HEAT LOSS TABLE

B.t.u. Load Unit No. 1, Serving Mortuary Proper

	B.t.u.
Chapel	47,187
Reception Room	23,310
Family Room	5,061
Ante Room	3,934
Men's Lavatory	1,617
Hall	4,270
Total	85,379

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TACO'S Wholesalers in cities all over the country are laying in stocks of the convenient new TACO shipping and handling package known as TACOPAK. These wholesalers are prepared to make deliveries to your jobs as you require them and to render you an engineering advisory service with your installations. These wholesalers are being furnished with the TACO advertising material and all of the details of the 1934 TACO cooperative advertising plan. Send us your name today and we will see that you are furnished with this wholesaler's name, together with all details. Taco Heaters, Inc., 342 Madison Ave., New York City. In Canada, Taco Heaters of Canada, Ltd., 24 Adelaide Street, West, Toronto, Ont.

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For Year-Round Automatic Domestic Hot Water Supply With Automatic Firing

the earnest consideration of funeral directors who believe that the comfort of the public in their establishments will be reflected in greater volume of business and more profit, the study of a change over from ordinary heating to complete winter air conditioning equipment.

Gas Boilers—

(Continued from Page 74)

Gallons of oil fired per hr. Approx. 8 Gal.
Size of Combustion Chamber, 32 in. x 40 in. x 24 in.
Cubical Contents Combustion Chamber, 20 cu. ft. plus.
Cu. ft. comb. chamber per gal. oil, $20 \div 8 = 2.5$ cu. ft.

With the above information and the manner in which an installation of this kind is made and a sensible comparison of the oil and gas bills, there is no reason why a good burner dealer should make a mistake in either the installation or in estimating the oil bill as compared to the gas bill. Don't guess at figures. Take nothing for granted. Demand to see the actual gas bills. Care in these details will mean no arguments afterward and a pleased customer. After a few installations of this kind have been made and the records of performance have been given to a prospect, only the name of the satisfied user is necessary to close sale after sale. In estimating fuel consumption on the basis mentioned in this article, we have never been far wrong. The seasons will vary but an average of ten cases will show the results being obtained. We have over twenty-five installations of this kind in our territory.

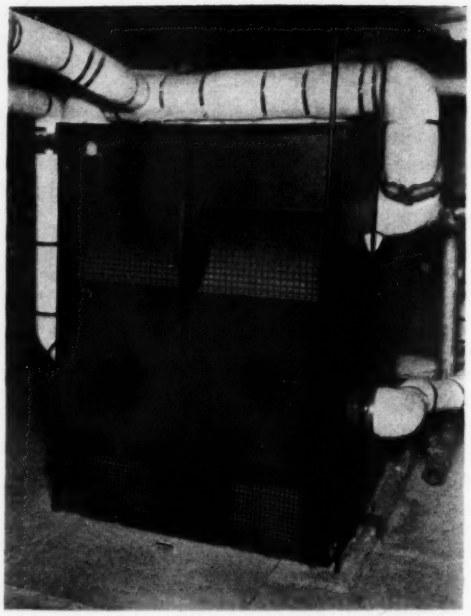
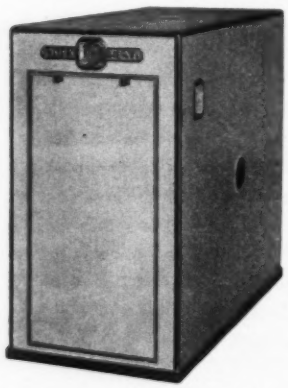


Fig. 4—This view shows the finished conversion job, and the neatness with which the installation was made. The burner and pit are completely hidden by the tight fitting cover

The domestic oil burner can positively be applied successfully to the gas burning boiler. The installation

YORK OIL BURNER COMPANY'S LATEST DEVELOPMENTS WERE THE HIT OF THE NEW YORK HEATING & VENTILATING EXPOSITION



The new domestic pressure models came in for their share of praise. The best line we ever showed. Favorable comment was heard everywhere concerning the York fully automatic heavy oil burning horizontal rotaries.

But the greatest sensation was the new York boiler burner combination. Baked on enamel, light green in color, modernistic in design, the only boiler which permits the completely enclosed installation of a standard "Gun" type burner. Hundreds said it was the hit of the show. Ahead of its time. Dealers and prospects showed their enthusiasm by placing orders.

In eye appeal, efficiency and mechanical features it was ahead of all. This York Heat Unit and the complete York line will be shown at the annual Oil Burner convention in Philadelphia March 5th to 9th. If you won't be there to see the York display, write for information.

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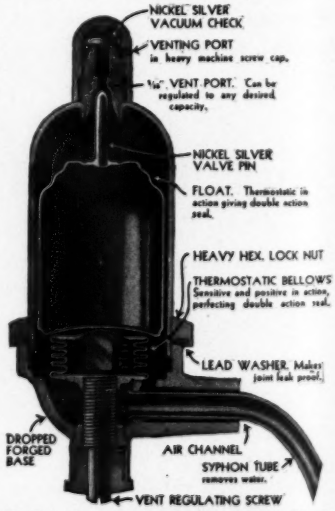
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RADIATOR AIR VALVES

must be carried out in a careful and workmanlike manner. Careless or slipshod installations will not last and will simply boomerang back as a dissatisfied user. Few service men will carry out an installation as shown in the accompanying photographs and described above, and during the last four or five hours of the work someone in authority from the office should be on hand to see that the small details are finished up correctly.

Attic Fans—

(Continued from Page 79)

appreciable effect on the cooling and ventilating capacity of the fan.

Centrifugal Steel Plate Fan: The fan assembly shown in Fig. 3 was not installed until the latter part of last summer, consequently reliable temperature data are not available. Capacity tests were made, however, and enough information was gathered to give assurance that the fan was capable of effectively ventilating the three upstairs bed rooms to which the center hall and attic stairs are connected.

DETAILS OF FIRST TEST

On the first test the fan was operated at 390 r.p.m., and anemometer measurements showed an air movement up the attic stairway of about 5880 c.f.m. At this speed, however, there was considerable air noise, and for the second test the fan speed was reduced to 320 r.p.m. At the latter speed the fan handled 5040 c.f.m. up the attic stairway at a static head of 0.11 in. of water. With the downstairs closed, and the windows open in two bed rooms, the air flow through one of the bed rooms was 1580 c.f.m. and through the other 2600 c.f.m. With the volume of the second floor equal to about 5800 cu. ft. this rate of air flow provided about 52 changes of air per hour. The measured air flow through the two bed rooms which were open was 4180 c.f.m. and the difference between this volume and the quantity of air actually handled by the fan can be accounted for by in-leakage of air through windows in other rooms and leakage up the first floor stairway. The air movement up the stairway, however, was not sufficient to register on the anemometer. This leakage and short circuiting of air amounted to about 860 c.f.m. or about 17 per cent of the total volume of air handled by the fan. With this rather high rate of air change it seems certain, considering the experience with the other installations, that this fan will accomplish very effective cooling.

Since the attic ventilating fan is usually located directly over the sleeping rooms, it is quit essential that every possible precaution be taken to reduce the fan and motor operating noises to a level which is not objectionable to the occupants of the home. In the case of the centrifugal fan installation, both fan and motor were mounted on a wood platform which was insulated from the attic floor joists by strips of ½-in, sponge rubber, and rubber washers were used under all holding-down bolts. In spite of these precautions, the initial fan speed of 400 r.p.m. proved to be too high for quiet operation, and it was reduced to about 300 r.p.m. It was also found desirable to limit the velocity of the air through the ceil-

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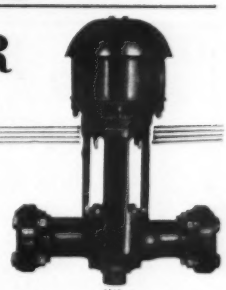

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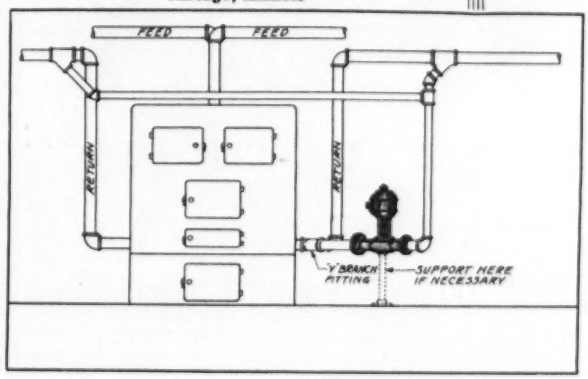

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ing grilles to about 400 f.p.m. in order to reduce the air noise. Motor noises have frequently proved troublesome, and the capacitor type of motor has been found particularly well adapted to this service because of its inherent quietness of operation.

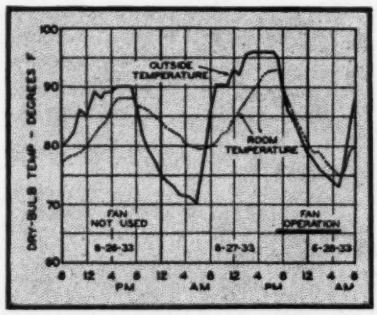


Fig. 7—Effect of centrifugal attic fan ventilation upon the temperature of an upstairs room

The propeller fan installation described in this paper was not satisfactory from the standpoint of noise. At the normal operating speed of 900 r.p.m. the blade tip speed was 500 f.p.m. and the air noise was quite disturbing. For that reason the fan usually was not operated after the occupants had retired for the night. Although strips of felt were placed between the fan casing and the wood studding to which it was bolted, this was not very effective in reducing the transmission of sound through the building structure. Experience thus far in-

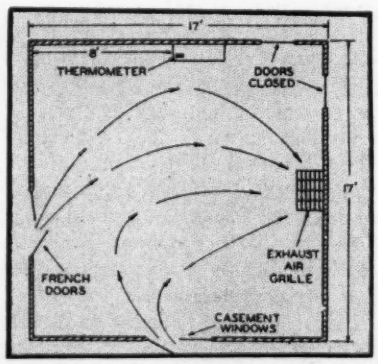


Fig. 8—Distribution of air in a bedroom ventilated by an attic fan

dicates that the tip speed of a ventilating fan should not exceed 3200 f.p.m. if quiet operation is desired.

1. It is quite practicable, by the use of either a centrifugal or propeller type attic ventilating fan, to very effectively cool the sleeping rooms in a moderate-sized house.

2. The downstairs portion of the house can be effectively ventilated if the fan is connected to an attic stairway in such a manner that the entire first floor can be placed under suction by way of the first floor stairs. It is not advisable, however, to leave the downstairs open after the occupants of the house have retired, as the flow of air through the bed rooms, and consequently the cooling effect in these rooms, is greatly reduced.

3. Wherever possible, the capacity of the fan should be such as to provide a minimum of about 30 air changes

Table 1—Attic Ventilation Fans in Residences

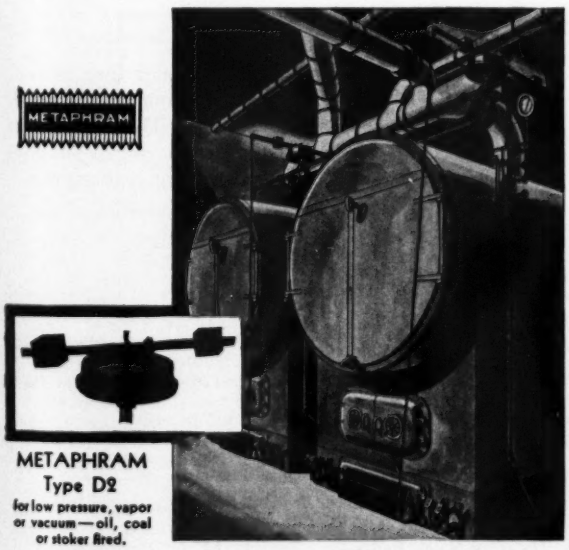
Type of Fan	Centrifugal Multi-Blade (Exhaust Duct System)	Propeller	Centrifugal Steel Plate Curved Blade—No Scroll
Diameter of Wheel—Inches	18	21¼	36
Capacity—c.f.m. (as measured)	2754	3060	5040
Fan Speed—r.p.m.	300	90 600	320
Blade Tip Speed—f.p.m.	1415	500 3300	3010
Motor Drive	½ hp Capacitor Start and Run—1140 r.p.m.—V Belt Drive	Direct Connected to a 1/6 hp 900 r.p.m.—V Belt Drive	1/3 hp Capacitor Start and Induction Run—1715 r.p.m.—V-Belt Drive
Static Pressure of Fan—Inches of Water	0.10*	0.038**	0.11*
Volume of Space Ventilated—cu. ft.	4600	5000	5800
Rate of Air Renewal—Changes per hour	36	37	52
Fan and Motor Mounting	Sponge Rubber Insulated Wood Platform	Bolted to Wood 2x4's faced with strips of felt	Welded Angle Iron Frame supported at four corners on 2x2x1" sponge rubber pads
Power Input—Watts	320	252	375
C.f.m. per Watt Input	8.6	12.1	13.4
Power Consumption for Season 1933—kw-hr.	48	14	....
Hours of Operation—1933	150	55	....

*Static pressure of fan is computed to be the static pressure at fan outlet plus static pressure (draft) at fan inlet minus velocity pressure at fan inlet; draft gauge mounted in the attic in all cases.

**Static pressure readings on the suction and discharge side of the fan, were taken where air velocities were negligible, consequently no correction for velocity head is made; draft gauge mounted in the attic.

per hour. In very large homes, physical or commercial limitations may dictate the use of a proportionately smaller fan, providing about 20 changes of air per hour. This is still sufficiently high to accomplish reasonably satisfactory cooling.

4. Natural ventilation, induced by the stack effect of the structure resulting from the opening of attic doors and windows, is not nearly as effective in circulating air from out of doors as is an attic fan which provides about 30 changes of air per hour.



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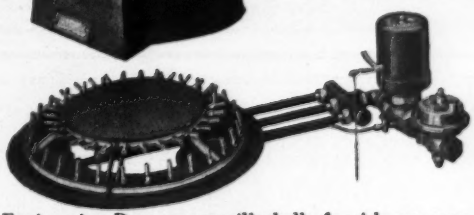

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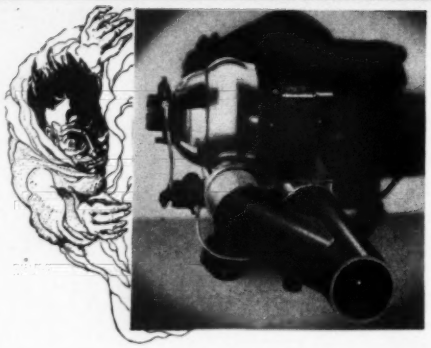

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PAGE 65
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New Home—

(Continued from Page 71)

thrown to the third position. With the control switch in the basement thrown to the third position, the electrically operated dampers operate to open all of the ducts, thus insuring a supply of air to the entire house.

Table I. Calculated Heating Load

(Based on 0° F. Outside, 70° F. Inside)

Room	Btu. Per Hour	*Minimum c.f.m. for Heating
1st Floor		
Living Room	9900	130
Dining Room	7100	94
Breakfast Room	3000	40
Kitchen	5900	78
First Floor Hall	9000	118
Toilet	2000	26
2nd Floor		
Main or N. E. Bedroom	7400	98
S. E. Bedroom	6300	83
S. W. Bedroom	5700	75
Bathroom No. 1	3500	46
Bathroom No. 2	2500	33
Book Room	7400	98
Second Floor Hall	4000	53
Basement		
Game Room	15500	204
Laundry	12500	165
Toilet	3000	40
TOTAL	104700	1381
Sun Room	12300	

*Minimum c.f.m. for heating based on 135 deg. Fahr. register temperature and 65 deg. Fahr. air entering heating coils. Actual C.F.M. will be greater on high fan speed to provide ready response, and less than the above on the low fan speed.

The fan and the refrigerating equipment then is controlled from either the living room control station or the bedroom control station as desired. The hall selector switch determines which of these two control stations are to control the fan and refrigerating equipment.

Table II.

Duct Sizes

Room	Supply Risers	Returns
1st Floor		
Living Room	Two 6"x12"	One 3"x12" and one 6"x12"
Dining Room	Two 5"x12"	One 4"x11" and one 5"x12"
Breakfast Room	One 3"x8"	—
Front Entrance Hall	One 4½"x12"	Two 10"x14"
Rear Entrance Hall	One 3"x9"	—
Toilet	One 3"x6"	—
Kitchen	One 6"x8"	—
2nd Floor		
Main or N. E. Bedroom	Two 4"x12"	Two 3"x10"
S. E. Bedroom	Two 4½"x11"	One 6"x12" and one 4"x9"
S. W. Bedroom	Two 3"x13"	Two 3"x12"
Bathroom No. 1	One 3"x5"	—
Bathroom No. 2	One 5"x9"	—
Book Room	One 6"x10"	—
2nd Floor Hall	One 3"x10"	—
Basement		
Game Room	One 8"x9"	—
Laundry	One 8"x12"	—
Toilet	One 3"x6"	—
Hall	None	One 15"x18"
Garage	One 4½"x12"	—

. It is worth noting that in the third control position, when it is desired to cool all of the house as much as the limited refrigerating capacity will permit, the fan is operated at a higher speed than when cooling only part of the house. This arrangement has the double advantage of obtaining a maximum amount of air circulation in the house (thus assisting in reducing the effective temperature when the refrigerating capacity is limited) and also of increasing the percentage of sensible heat abstracted from the air passing through the air conditioning unit.

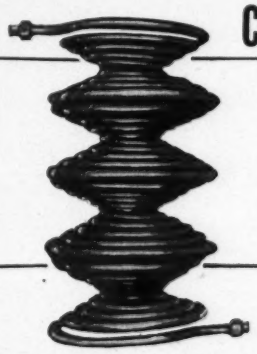
Table III. Estimated Cooling Load Btu. Per Hour

Room	Living Room	Dining Room	N. E. Bedroom
Sensible Heat			
Radiation	3840	2880	2330
Sun Load	2900	3320	2130
Lights	6200	1370	1200
People	1200	1200	400
Air Charge	750	470	400
Safety Factor	1000	750	500
Latent Heat			
Air Charge	720	450	400
People	1200	1200	400
Safety Factor	200	200	100
Night Cooling Load			
Sensible Heat	12990	6670	4830
Latent Heat	2120	1850	900
Total Heat	15100	8520	5730
Daytime Cooling Load			
Sensible Heat	9690	8620	5760
Latent Heat	2120	1850	900
Total Heat	11810	10470	6660

Room	S. E. Bedroom	S. W. Bedroom	Entire House
Sensible Heat			
Radiation	2070	1870	14575
Sun Load	2010	1800	13000
Lights	1370	350	17100
People	400	400	1200
Air Charge	350	300	4500
Safety Factor	500	400	5000
Latent Heat			
Air Charge	350	300	7500
People	400	400	1200
Safety Factor	100	100	1000
Night Cooling Load			
Sensible Heat	4690	3320	43145
Latent Heat	850	800	9700
Total Heat	5540	4120	52845
Daytime Cooling Load			
Sensible Heat	5330	4770	38275
Latent Heat	850	800	9700
Total Heat	6180	5570	47975

Night cooling does not include sun load. Daytime load does not include lights. Safety factor is added to take care of miscellaneous appliances and other undeterminable items. Calculation on basis of 15 degree cooling and one air change per hour. Due to double windows, 1 in. of insulation in the walls and 2 in. of insulation in the roof, the radiation and sunload and hence the total cooling load, are low for a house of this size.

From the above description, it can be seen that complete air conditioning is provided for the occupants of the house, under convenient semi-automatic control and with only a limited amount of refrigerating capacity actually installed. It is believed that this installation, although frankly experimental, will show the desirability of installing cooling equipment of limited size in a residence. The development of a practical method of installing limited refrigerating capacity in a home and of transferring this cooling capacity from one part of the house to another as desired, may be one solution to the difficulties preventing more widespread use of residence cooling at the present time.



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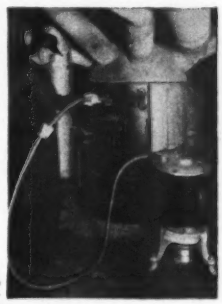
Profitable EXTRA *Business*

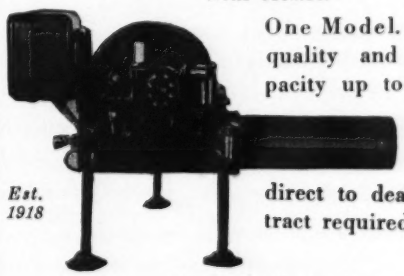
Cleaning heaters with the Kent Double Suction Cleaner is a source of extra profit that the smart heating man never overlooks. The business is there. How much money you make on each job is governed by the type of cleaner you have. Kent gives you a full share. Money is moving easier today than it has been for some time. Push heater cleaning and get this extra business now. Write for Kent's ten reasons.



The KENT COMPANY, Inc.
158 Canal St., ROME, NEW YORK

The Fairfield Oil Burner

NRA Member

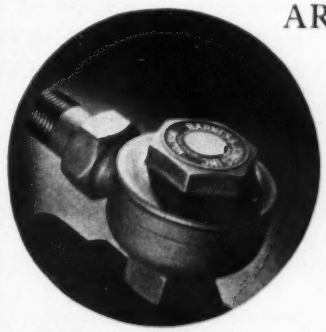


Est. 1918

One Model. Featuring quality and flexible capacity up to 3000′ steam radiation. Lowest price. Sold direct to dealer—No contract required.

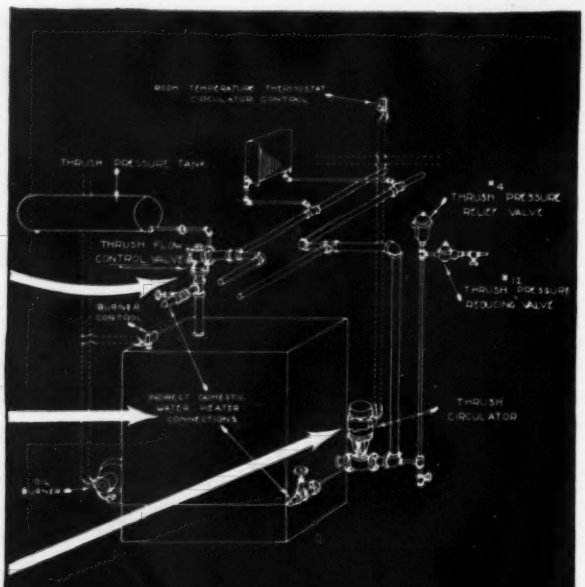
Greenwich, Conn.

ARE YOUR CUSTOMERS' RADIATORS HOUSE-BROKEN?



Hissing and sputtering air valves ruin an owner's disposition,—and sometimes rugs and wallpaper. Rid your customers of these annoyances and free yourself from a lot of unprofitable service,—install B & J traps and valves, backed by more than 30 years' experience. Built to give trouble-free service. Want our latest catalog?

BARNES & JONES, *Inc., 128 Brookside Ave.*
JAMAICA PLAIN, MASS.



NOW AVAILABLE

A MODERN AND COMPLETE COURSE IN AIR CONDITIONING

THE present importance of Air Conditioning is generally recognized. Its future importance is a challenge to the imagination! This much is certain: *Already necessary, thorough knowledge of the principles of Air Conditioning soon will be a basic requirement in the whole building field.* Employers as well as employees *must* master this subject.

Because of a nation-wide demand for simple but scientific training in Air Conditioning, the International Correspondence Schools take pleasure in announcing a course as up-to-date as 1934. It starts at the beginning of this fascinating subject and carries through to the end. As are all other I. C. S. Courses, it was prepared and will be revised, when necessary, by leading authorities in the field. Complete information will be sent free upon request. The coupon is for your convenience.

INTERNATIONAL CORRESPONDENCE SCHOOLS

DEPT. 7996, SCRANTON, PA.

Send me free information on the following subject:

☐ AIR CONDITIONING ☐ Heating
☐ Ventilation ☐ Sheet Metal Worker
☐ Refrigeration

Name _____

Address _____

W. O. Waldsmith Called by Death

W. O. Waldsmith, president of the Del-Home Light Company of St. Louis, Mo., died recently at Miami, Fla., after an illness of several months. Mr. Waldsmith had a large circle of friends in the electric refrigeration and the air conditioning field, having for years covered southern Illinois and eastern Missouri in the interest of these products.

Independent Oil Men Will Meet in Boston

The Independent Oil Men's Association of New England will hold its tenth annual convention March 15 at the Statler Hotel in Boston, Mass. A program of interest to heating oil distributors, service station operators and dealers in lubricating oils has been arranged. Members of the petroleum industry are invited to attend.

Moser & Suor Secure Trane Co. Franchise

Moser & Suor of Kansas City, Mo., have just signed a franchise with The Trane Company, LaCrosse, Wis., whereby they become the Kansas territory distributors of the Trane Co.'s line of room coolers, air conditioning, heating and drying equipment. Charles Walling, refrigeration engineer and former manager of the Kansas City office of the Lippman Company, has joined the Moser and Suor organization in charge of air conditioning. Distribution of this equipment will be through the heating trade in conformance with the general policy of The Trane Company.

Kaveny Bros. Co. Opens Branch in Hackensack

Kaveny Bros. Co. of 32 Valley Road, Montclair, N. J., distributor of oil burners and oil burning boilers, has opened a new branch at 357 Main Street, Hackensack, N. J. This is this company's third branch, the two other branches being located at 3010 Boulevard, Jersey City, N. J., and at 49 Bloomfield Avenue, Newark, N. J.

Boston Oil Burner Associates Hold Annual Meeting

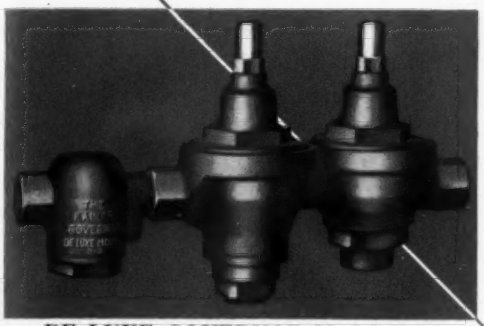
The Boston Oil Burner Associates recently held their annual meeting at the Hotel Kenmore in Boston, Mass., and elected the following officers: President, Don J. Edwards, Newton, Mass.; vice president, Walter T. Sullivan, Somerville, Mass.; secretary-treasurer, Fred Beckwith; directors at large: James J. Kelly and T. A. Snow.

E. V. WALSH, for six years general sales manager, and more recently vice president in charge of sales, of the Timken Silent Automatic Company of Detroit, Mich., has resigned and severed his connection with this company. His plans for the future have not been announced.

Harness the 3 Major Fuels

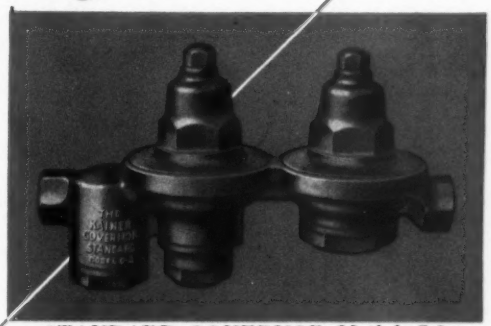
USE KAINER GOVERNORS

On Hot Water Heating Systems



DE LUXE GOVERNOR Model B-2

They Provide Automatic Supply, Better Circulation, Safety and Economy



STANDARD GOVERNOR Model C-3

HEATING CONTRACTORS . . . WHOLESALERS . . . OIL BURNER DEALERS

Nothing in the World assures you steady business or builds GOOD WILL and CUSTOMER SATISFACTION any better than SURE—QUICK—COMFORTABLE temperatures (at lowest cost) to Home Owners, obtained only with well regulated, *PROPERLY EQUIPPED* Hot Water Heating Systems REGARDLESS OF FUELS, be it GAS—OIL—or COAL.

It will be interesting for you to know that the KIND OF FUEL used IN NO WAY alters the efficiency of KAINER GOVERNORS. On the other hand KAINER GOVERNORS materially alter COSTS and EFFICIENCY of ALL FUELS.

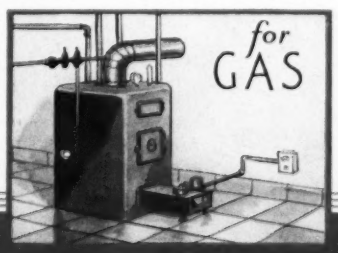
Whether a customer is GAS—OIL or COAL minded depends somewhat upon his ideas of COMFORT and convenience, but largely upon his FUEL BILLS.

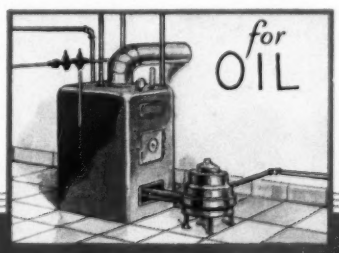
Many changes are being made constantly from one type of heating equipment to another due to EXCESSIVE FUEL BILLS. Obviously, then, whichever TYPE of equipment you are promoting CAN BE MADE TO PERFORM *MOST* ECONOMICALLY by installing a KAINER GOVERNOR.

KAINER GOVERNORS *EXACT* the ULTIMATE in heating efficiency from these MAJOR FUELS. Put Kainer Governors on your heating jobs. They are not only PROFITABLE but will back you up in your theories on economical heating.

FULLY DESCRIPTIVE LITERATURE GLADLY SENT ON REQUEST

TAKE YOUR PICK—BUT USE A KAINER GOVERNOR!





KAINER & COMPANY--760 Mather St.--CHICAGO

FIRST WITH STAINLESS STEEL VALVES

FIRST WITH "COOL FEED VALVE" FEEDER

FIRST WITH WIPING ACTION HIGH VOLTAGE SWITCH

FIRST WITH QUICK HOOK-UP

FIRST WITH "FLOAT AND SYLPHON" CONSTRUCTION

FIRST WITH ALARM FEATURE AS STANDARD

FIRST WITH COMPLETE DATA BOOK

Has it Paid to "Do One Thing Well?"

We have stuck to one thing—boiler water level control—for ten crowded years. During those ten years we have been asked repeatedly, "when do you intend to *broaden* your line?"... and invariably the reply has been—

"When and if we find it impossible to further perfect boiler water level control!"

Perhaps that time will never come ... Ten years ago an automobile manufacturer headlined his advertisement. "The *final* achievement." He was sincere, no doubt, but today we are still seeing further achievement in automotive design!

Ten years ago we, too, were building good boiler water level controls. Then, and each time that we improved them since, we, too, have wondered if we hadn't struck upon the "*final* achievement."

But we have never said so, and we won't say so now. Now, as in the past, we propose to go right on "Doing One Thing Well," because the record of the years has convinced us that this policy has been responsible for bringing boiler protection and water level control into popular demand by the simple process of making available ever better and more dependable equipment.

Here, briefly, are a few of the more outstanding developments that "Doing One Thing Well" has contributed to Boiler Water Level Control during those ten years:—

1 The introduction of the "float and sylphon combination" in low water cut-off and feeder construction, eliminating stuffing boxes, packed joints and leakage.

2 The introduction of the cool feed valve feature—commonly known as the isolated feed valve—which eliminates lime and precipitate at the feed valve. This was a truly revolutionary development.

3 The introduction of stainless steel valves of file hardness that prolonged feeder life.

4 The development and introduction of the quick-hook-up feature (on the McDonnell No. 37 safety feeder and No. 38 Low Water Cut-off. No. 38 is now superseded by the No. 60 Low Water Cut-off).

5 The introduction of a large capacity strainer shipped in place ahead of the feed valve to prevent pipe cuttings and dope reaching the feed valve—a typical refinement.

6 The introduction of an alarm feature as standard equipment on No. 48 and No. 60 Low Water Cut-offs, and on No. 37-35 Safety Feeder-Cut-off Combination.

7 The introduction of an advanced high voltage switch with special wiping action and rugged construction which safely withstands rough handling such a switch receives.

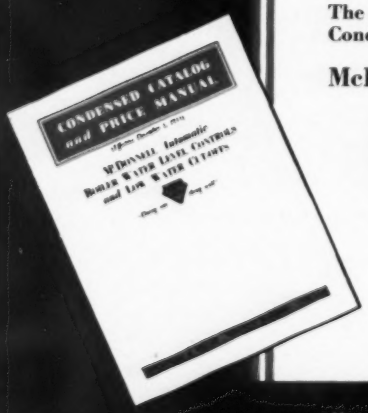
8 The introduction of the first complete "Data Book") showing hook-up drawings for feeders and cut-offs on all popular makes of boilers.

So there you have eight steps—all pioneering steps—that have more than justified the policy of "Doing One Thing Well." We could cite many more, but ... the fact that many of these developments have been widely adopted in other makes of feeders and cut-offs is proof of recognized leadership.

What does this signify to you? Simply this: The organization that has led and is still leading is almost certain to have the latest and best equipment to do the job.

The latest evidence of McDonnell leadership is found in the *December* Condensed Catalog and Price Sheet. Write for it today.*

McDONNELL & MILLER, 1306 Wrigley Bldg., Chicago



McDONNELL
Boiler Water Level CONTROL

"Doing One Thing Well"

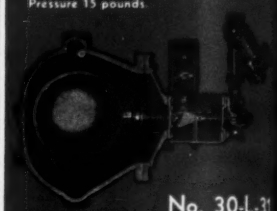
*Here is one case where leadership does not exact a premium price. Despite their many plus features the price of McDonnell Equipment—type for type and size for size—is rarely higher often lower than other makes.

For AUTOMATIC JOBS

All good authorities now agree that a combined feeder and cut-off offer the only complete water level control for automatic jobs. Such units are the No. 37-35, 30-S-31 and 30-L-31 illustrated below. If protection alone without the added convenience is acceptable, and price is a ruling factor, the two most dependable and reasonable low water cut-off switches are the McDonnell No. 60 and No. 48.

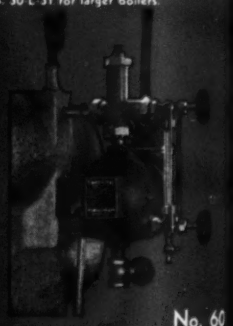
No. 37-35

Combined feeder and cut-off switch—For boilers up to 2500 Sq. Ft. Maximum Steam Pressure 15 pounds.



No. 30-L-31

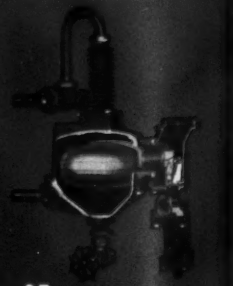
Combined feeder and cut-off switch—Maximum Steam Pressure, 25 pounds. Use No. 30-S-31 for boilers between 2500 and 5000 Sq. Ft. and No. 30-L-31 for larger boilers.



No. 60

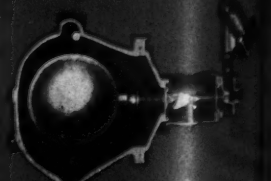
Low Water Cut-off with quick hook-up feature. Maximum Steam Pressure, 25 pounds. Especially recommended for round boilers and boilers that have the water glass in the fire section. Use No. 48 for boilers that have independent water columns.

For HAND-FIRED JOBS



No. 37

For boilers up to 2500 Sq. Ft. Maximum Steam Pressure, 15 pounds.



No. 30-L

Max. Steam Pressure, 25 pounds. Use No. 30-S for boilers between 2500 and 5000 Sq. Ft. No. 30-L for boilers larger than 5000 Sq. Ft.

SUPPLY NEWS

Month's Developments among Manufacturers, Wholesalers and Salesmen in All Sections

Four Associations Name Fair Competition Committees

The following Fair Competition committees have just been elected to represent the following associations:

VITREOUS CHINA PLUMBING FIXTURE ASSOCIATION: Archibald M. Maddock, E. S. Aitkin, Raymond Crane, T. H. Harker and Roy Troeger.

SANITARY CAST IRON ENAMELED WARE ASSOCIATION: A. H. Cline, chairman, W. G. Langford, J. Bonner, Jr., C. C. Adams and Herbert V. Kohler.

TOILET SEAT MANUFACTURERS ASSOCIATION: H. C. Leslie, Mrs. Pauline Redlich, George Cunningham, Dudley Warth and H. C. Bulkeley.

SANITARY BRASS MANUFACTURERS ASSOCIATION: A. V. Germill, E. H. Blywise, O. G. Hitchcock, R. L. Ottke and D. P. Gainey.

J. Verner Scaife, Jr., Made President of Wm. B. Scaife & Sons Co.

J. Verner Scaife, Jr., has been elected president of Wm. B. Scaife & Sons Company at Oakmont, Pittsburgh, Pa., succeeding his brother, Alan M. Scaife, who will continue in the capacity of vice president, but will devote part of his time to the affairs of the Pittsburgh Coal Company, of which he was recently elected chairman of the board. J. Verner Scaife, Jr., has been connected with the Scaife Company since his graduation from Yale University in 1927 and has for several years been vice president.

Announces Changes in Revere Copper & Brass

C. Donald Dallas, president of Revere Copper and Brass Incorporated of New York City, has announced the following changes in the general sales department of the company:

J. A. Doucett, formerly vice president and general sales manager, has been appointed vice president in charge of sales, and C. A. Macfie, formerly assistant sales manager, becomes general sales manager. In his new position Mr. Doucett will give special attention to matters pertaining to the NRA Code of Fair Competition of the Copper and Brass Mill Products Industry, as well as to company policies, and Mr. Macfie will devote his time to general company sales activities.

Both Mr. Doucett and Mr. Macfie have had long experience in the copper and brass industry. Before coming to Revere, Mr. Doucett was connected with the American Brass Company at Buffalo and Kenosha, and later was vice president of the Michigan Copper & Brass Company in Detroit, now the Michigan Division of Revere. Mr. Macfie was at one time manager of the copper sales department of the U. T. Hungerford Brass & Copper Co. Later he was New York sales agent for Rome Brass & Copper Co., now the Rome Division of Revere. In 1931 he became assistant sales manager of the general sales department of the Revere Copper and Brass Incorporated. Both men will be located at the company's executive offices at 230 Park Avenue, New York City.

Appointed Sales Promotion Manager for American Radiator Co.

Marshall Adams, sales promotion manager of the merchandising department of Westinghouse Electric and Manufacturing Company of East Pittsburgh, Pa., has been appointed sales promotion manager for the American Radiator Company of New York City, according to announcement issued by Arthur R. Herske, vice president and general manager of sales.

Marshall Adams

Mr. Adams is a native of Kentucky and a graduate of Georgetown College. He has had eleven years' experience in the mechanical equipment field, following two years as executive secretary for his college and a year of work for the White Motor Company. He has been connected with the Westinghouse Electric and Manufacturing Company since 1923.

Mr. Herske has also announced that Max D. Rose, assistant general manager of sales, has been made Eastern sales manager for the American Radiator Company, and that D. E. Kennedy, vice president with headquarters in Chicago, has been made Western sales manager.

Max D. Rose

D. E. Kennedy

Chase Brass & Copper Co. Leases Four Floors in Large Building

The Chase Brass & Copper Co. with general offices and manufacturing plants in Waterbury, Conn., has leased the four top floors, the 45th, 46th, 47th and 48th, in the Tower Building at 10 East 40th Street, New York, N. Y. Chase will locate the New York City offices of three of its divisions in this building which will be known in the future as Chase Tower. The Specialty Sales Division, the new Lighting Fixture Division and the Heating Products Division (formerly the Erskine Radiator Division) are included in the centralization plan, the Mill and Warehouse Division offices remaining at their present location, 80 Lafayette Street.

The four floors leased will be altered for single tenant occupancy and private elevator service will be provided for the use of Chase employees between the floors leased by the Company.

Walter J. Kohler Honored by Society of Arts and Sciences

Walter J. Kohler, president of Kohler Company of Kohler, Wis., and former governor of Wisconsin, was awarded the first National Service Fellowship Medal of the Society of Arts and Sciences at a dinner in the Hotel Pierre, New York City, on Tuesday evening, January 23. The medal was awarded for his "services to humanity" in recognition of the construction and maintenance of Kohler village near Sheboygan, Wis.

Jas. P. Marsh Corp. Appoints Sales Representatives

Jas. P. Marsh Corporation of Chicago, Ill., has recently announced the appointment of three sales representatives as follows: A. W. Reynolds, 157 Baldwin Avenue, Syracuse, N. Y.; A. A. Maycock Company, Salt Lake City, Utah, and J. M. Kane, Fort Worth, Texas.

L. U. Noland Made President of Virginia State Chamber of Commerce

L. U. Noland, president of Noland & Company, of Newport News, Va., for a number of years a member of the board of The Virginia State Chamber of Commerce, has been elected president of the State Chamber by the Board. Mr. Noland is not only president of one of the plumbing supply concerns bearing his name, but holds a seat on the directorate of more than thirty companies in Virginia. He is connected with public utilities, insurance companies, heads a bank and has other important connections. He is noted throughout Virginia as a leader in the civic enterprises of the state. He succeeds Julien H. Hill, president of the State Planters Bank of Richmond.

L. U. Noland

American Radiator & Standard Sanitary Corp. Forms Air Conditioning Division

Fowler Manning

Clarence M. Woolley, chairman of the Board of the American Radiator & Standard Sanitary Corp. of New York City, has just announced that a special air conditioning division has been formed to assist the component companies of his corporation in co-ordinating their work in this field, and that Fowler Manning has been appointed director of this new division and will be assisted by George Atherton and Frank B. Stubbs. Mr. Manning was formerly president of the L. C. Smith and Corona Typewriters, Inc., Mr. Atherton has been assistant general manager of sales of the American Radiator Co. while Mr. Stubbs has been in charge of the corporation's bureau of air conditioning.

Jenkins Bros. Hold Annual Sales Conference

The sales division of the Jenkins Brothers of New York City held a three-day conference February 5-6-7 at Bridgeport, Conn.

President Farnham Yardley presided and drew attention to the codes affecting the industry, the intention of his company to cooperate in the elimination of unfair practice. He expressed the opinion that business had taken a definite upward trend with the time particularly favorable for laying plans for a genuine business revival.

Frederick C. Ernst, chief engineer, and John J. Shuck, oil engineer, gave practical talks on their line of work. A. D. Bennett, credit manager, spoke on 'Credits for 1934.' J. L. Deholczer, rubber expert, covered his subject. Mr. Ernst spoke on engineering problems, and Mr. Shuck on oil refineries. C. B. Yardley, sales manager and brother of the president, gave an interesting talk on "Gauge Glasses."

Fleck Bros. Co. Moves General Office

Fleck Bros. Company of Philadelphia, Pa., has moved its general offices and store from 50 North Fifth Street to 1621-1643 North American Street, where they will be combined with the company's warehouses.

Steam Heating Equipment Code Approved

A Code of fair competition for the Steam Heating Equipment Industry was approved on Feb. 12. This code covers the manufacture and distribution of low pressure steam heating traps and valves.

Thrift Radiator Range Co. Changes Hands

J. J. Donoghue and James D. Mooney have purchased the Thrift Radiator Range Company. The new firm will be known as the Thrift Range Heater Company with offices at 677 Montgomery Street, Jersey City, N. J. In our February issue we reported that Mr. Donoghue and Mr. Mooney had purchased the Universal Boiler and Radiator Company. This was an error, as there has been no change in the ownership of the Universal Boiler and Radiator Company.

General Electric Co. Buys B-Line Boiler Co.

General Electric Co. of Schenectady, N. Y., has purchased the good will, the raw materials, the finished and partly finished products, all machinery, equipment, furniture, patterns, patents and trade marks of the B-Line Boiler Co., at East 131st Street and Taft Avenue, Cleveland, Ohio, for $75,000. The transfer of the business and property will take place around March 5.

M. L. Kline Called by Death

M. L. Kline, for more than 20 years head of the wholesale plumbing company bearing his name in Portland, Ore., died in that city early in February. Mr. Kline, a native of Oregon, was born in 1865. After completing his schooling he entered the firm of Goldsmith & Lowenberg, Portland pioneer plumbers, remaining with them for 15 years. He next took a position with the Charles Gauld Plumbing & Steam Supply Company. Later he formed a partnership as the Gauld & Kline company. He sold out his interest to Mr. Gauld and purchased the Goldsmith & Lowenberg business about 1908, and continued it under the name of the M. L. Kline Company until 1928, when it was consolidated with three other local plumbing supply jobbers. Upon this consolidation he formed the Kline Specialty Company, handling power plant supplies. He was president of this concern until his death.

Milwaukee Valve Co.'s Chicago Office Is Moved

J. G. Gregory & Co. of Builders' Building, 228 North La Salle Street, Chicago, in charge of the Chicago office of Milwaukee Valve Company, have just issued notice to the effect that they have moved from the seventh to the nineteenth floor in Builders' Building, Room 1917.

Thos. Devlin Mfg. Co. Increases Working Force

At the plant of Thomas Devlin Mfg. Co., Inc., Burlington, N. J., maker of fittings and nipples, new gangs have been employed in the foundry and extra melting furnaces have been put into action in order to speed up production.

Eastern Trade Golfers Elect Officers

The Eastern Trade Golf Association of New York City held its annual meeting on Wednesday, February 21, and elected the following officers: President, Francis A. Murray; vice-president, B. A. Bacon; secretary-treasurer, R. G. Bookhaut; captain, J. Barton Garfield; directors: C. G. Witherspoon, Arthur F. Hinrichsen, J. C. McDonald, Donald M. Forgan and George Allen, Jr.

Mr. Garfield is serving his twenty-fifth year as captain of this association, and McDonald presented a motion, which was passed, to the effect that one of the tournaments of the coming season shall be known as the "J. B. Garfield Silver Anniversary Tournament." C. G. Witherspoon of Baker-Smith Company volunteered to donate the principal prize for this tournament.

The Culbert Pipe and Fittings Company of 301 West Side Avenue, Jersey City, N. J., has just announced that due to ill health I. T. Culbert has resigned as president and retired from business. E. W. Thompson, vice president of the company, has been elected to succeed Mr. Culbert as president.

..... it's the total

THAT COUNTS

$12.50
11.00
8.25
15.00
3.00
9.75
13.60
2.25
1.50

$76.85

WE know a plumber who was kicking about the times and while he was at it he swore that he would go out and get a lot of small jobs . . . . . he didn't see any big jobs in sight.

He says he is keeping busy putting in a new ball cock here and a new closet seat there—and the total looks pretty fair.

So if you are doing some of these small jobs don't forget that the American Line has been keeping customers for an awful lot of plumbers nearly 25 years.

Everything that comes out of our factory you can be sure is RIGHT and it's a mighty complete and up-to-date line of plumber's brass.

Ask your jobber.

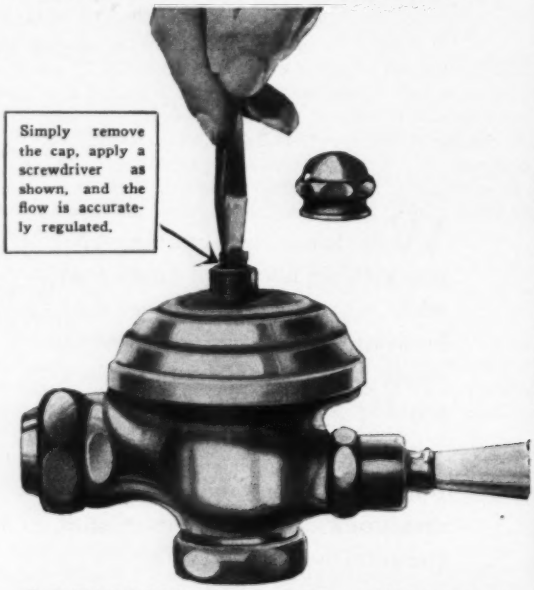
American SANITARY MFG. CO.
ABINGDON, ILLINOIS

Simplicity Itself -

A Turn of a Screwdriver Regulates the

Watrous

FLUSH VALVE



Simply remove the cap, apply a screwdriver as shown, and the flow is accurately regulated.

ADJUSTMENT is made as illustrated above, without turning off the water, or disturbing any connections. Once adjusted according to the needs of the fixture, the delivery is uniform and permanent, a safeguard against water-waste, and an assurance of sufficient volume for a thorough flush.

In all Watrous valves, the by-pass is thoroughly cleansed at each flush. A full waterway assures delivery of the entire available supply, an important feature on low pressures.

The entire Watrous plumbing line, including liquid soap fixtures, lavatory wastes, etc., is of the most up-to-date character, and in full accord with modern interior design.

JEWEL FLUSH VALVE
a Popular Watrous Model

Write for Plumbing Catalog No. 433

IMPERIAL BRASS MFG. CO.

1231 West Harrison St., CHICAGO

Obituaries—

Thornton H. Bissell

Thornton Hancock Bissell, for the last eleven years advertising manager for the International Nickel Company in New York City, died recently at his home in that city in his 46th year. Burial took place in his former home city, Trenton, N. J., and was attended by many of his old friends in the plumbing field. Prior to Mr. Bissell's connection with International Nickel Co., he was for many years associated with Thos. Maddock's Sons Co., Trenton, N. J., which company he served as advertising manager for some years and afterwards as its New York City representative.

William Lloyd

William Lloyd

William Lloyd, inventor of many improvements in sanitary equipment, died at his home in Chicago January 30 in his 76th year. Mr. Lloyd was connected with the plumbing industry from 1873 to 1929, when he retired from business. During his long business career he was connected with the following concerns: Shreve, Crump & Lowe of Boston (1875-1880): L. Wolff Mfg. Co., Crane Company and Federal-Huber Co., all of Chicago, and with Standard Sanitary Manufacturing Company of Pittsburgh and Chicago. He was also at one time instructor in the Massachusetts Institute of Technology, and he contributed the article on "Modern Sanitation" to the latest edition of the Encyclopedia. In recognition of his inventions in the water distribution field and in drinking fountain cooling systems he was awarded the Franklin medal. His inventions, numbering more than thirty, have been the means of advancing and improving modern sanitation both in residences and in public buildings.

Henry Baetz

Henry Baetz, inventor and formerly manufacturer of heating devices, died January 30 at St. Mary's Hospital in St. Louis, Mo., after an illness of five weeks, in his 70th year. Mr. Baetz invented a unit heater in 1898 and organized the St. Louis Blower & Heating Co., which manufactured this heater until 1914, when he sold out to the Skinner Bros. Mfg. Co., Inc., of St. Louis, at which time he was made consulting engineer in charge of this company's heater department, a position he held until a few years ago when he retired from business. His funeral was held on Saturday, February 3, with interment at Two Rivers, Wis., where he was born. His wife, two sons and two daughters survive him.

Robert J. Stephenson

Robert J. Stephenson of Simplex Manufacturing Company, 2644 North Ashland Avenue, Chicago, died January 23 in the American Hospital in that city, following an emergency operation for appendicitis. Mr. Stephenson, who was the junior member of the firm and a brother of W. B. Stephenson, president, was well known in the trade in the Middle West and had a large circle of friends in the supply trade in that section of the country

Business Personals

T. MUNROE DOBBINS, president of Camden Pottery Company of Camden, N. J., left January 31 on the S. S. Rex on a trip to the Mediterranean countries including Egypt, Greece, Italy and Spain. He will return about the second week in March.

JAMES R. WHITE, vice president and general sales manager of Jenkins Bros., manufacturers of valves in New York City, has resigned and severed his connection with that company in order to join the General Wine and Spirits Corporation in New York City as vice president in charge of sales.

Don D. Smith

DON D. SMITH, sales manager of the pottery division of Richmond Radiator Company, Inc., of New York City, has been made general sales manager of this company succeeding Allen P. Livar, who resigned recently. Mr. Smith assumed his new duties on February 2.

HOWARD P. CONWAY, formerly southern sales manager for Grinnell Co., Inc., of Providence, R. I., has been appointed general sales manager of this concern and will make his headquarters in Providence, R. I.

KARL KAUTZ, formerly ceramic chemist with Abingdon Sanitary Manufacturing Company of Abingdon, Ill., has joined the staff of the Republic Steel Corporation of Youngstown, Ohio, and will specialize in research and field service on enameling sheets. Mr. Kautz will make his headquarters at Republic Steel Corporation's Central Alloy Division at Masillon, Ohio.

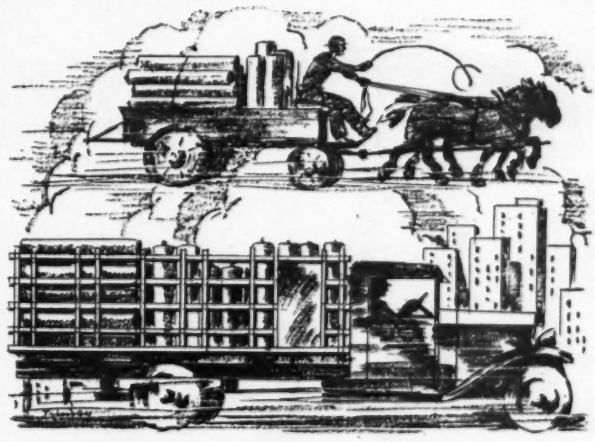
CHARLES E. MILLER, JR., who for the past few years has been connected with the office staff of the Thomas Devlin Manufacturing Company of Philadelphia, Pa., has been promoted to the sales organization of this company to assist W. G. Sims in covering Philadelphia territory.

Fred J. MacKenzie

FRED J. MACKENZIE, manager of the Philadelphia office of the Trenton Potteries Company of Trenton, N. J., has been transferred to Chicago to succeed the late Walter G. Sine, who died in December last year. Mr. MacKenzie's territory will include the states of Illinois, Wisconsin, Minnesota, Iowa and Missouri. S John Radice, who has been connected with the Philadelphia office of Trenton Potteries Co. for the last eight years, covering Philadelphia territory, has been appointed manager of the Philadelphia office to succeed Mr. MacKenzie.

GEORGE H. DERBYSHIRE, of Derbyshire, Mack & Morgan, Inc., manufacturers' representatives in Philadelphia, Pa., was recently elected councilman in the borough of Ridley Park, Pa., a suburb of Philadelphia, in which he resides. Mr. Derbyshire will fill the office of police commissioner in Ridley Park as part of his executive duties of councilman.

It's a KOVEN Product



52 Years ago, it was Koven Tanks... Today Koven Tanks still lead

For over half a century, reputable plumbing supply houses have featured Koven tanks—they know that the best workmanship combined with only the finest material go into manufacturing a product that has built the reputation of Koven, so, that, when you are in the market for a tank, why not order one that is being endorsed by those who know?

RANGE BOILERS Galvanized or Copper
SCULLERY SINKS
BARBER BOILERS
KOVEN-PARACOIL TANKS

NRA

STORAGE TANKS Steel or Copper
FUEL OIL TANKS
EXPANSION TANKS
SEPTIC TANKS

Insist on the best by asking for Koven Products from your jobber.

Send for new Plumbers' Hand Book

L.O. KOVEN & BRO. INC.
JERSEY CITY, N.J.

VALVES

BY JARECKI

● Designed for long use, Jarecki Valves are sturdy and correctly proportioned. Because they are tested to withstand pressure far *beyond* their working rating, you can be sure of that EXTRA measure of service which the Jarecki trademark symbolizes. A complete line—backed by 82 years of progress in valve-making.

JARECKI
MANUFACTURING CO.
ERIE, PA., U. S. A.

JOHN E. KITSON has been appointed sales representative for the convector department of the Rome Radiation Company Division of Revere Copper and Brass Incorporated of Rome, N. Y. His territory will include the northern portion of the state of New Jersey, and Rockland county and Staten Island in New York State. He will make his headquarters at 214 Johnson Avenue, Teaneck, N. J.

C. V. MURRAY has been appointed sales representative for the Patterson Foundry & Machine Company of East Liverpool, Ohio, with headquarters at the company's branch at 30 Church Street, New York City. Mr. Murray has served the New York territory for more than thirteen years as sales engineer for the Robinson Manufacturing Company of Muncy, Pa.

C. E. GAY, formerly sales manager for the Kellogg-Mackay Company of Kansas City, Mo., has recently become connected with the Federal Steam Specialties Company of Oklahoma City, Okla.

WILLARD H. RAINWATER, for five years Northern California and Nevada representative of C. F. Church Mfg. Co., of Holyoke, Mass., is now associated with the James A. Riordan Co. of Los Angeles, Calif.

Lewis H. Dietz, who has represented the H. A. Thrush Company of Peru, Ind., in New York City and vicinity, has been made sales manager of this company and will soon make his headquarters in Peru, Ind.

P. R. CLARKE, formerly associated with the Clarke & Van Nostrand Company of Flushing, N. Y., is now affiliated with the Equitable Supply Company, Inc., at 76th Street and 77th Avenue, Glendale, L. I., N. Y. Mr. Clarke has been connected with the wholesale plumbing supply business for many years.

GUY A. VOORHEES has been placed in charge of the engineering department of the Lakeside Company, Hermansville, Mich., manufacturers of air conditioning equipment.

ROY M. MOFFITT, who for the past six years has been manager of the L. J. Mueller Furnace Company's Chicago branch, became associated with the Fairbanks Company, air conditioning contractors in Chicago on January 22.

DR. RALPH E. HALL, director of Hall Laboratories in Pittsburgh, Pa., has just been selected as the recipient of the 1933 Pittsburgh award in recognition of his service to science and humanity by solving boiler-water problems and by developing chemicals for conditioning water for industrial and domestic use. This honor is awarded by the Pittsburgh section of the American Chemical Society, and this is the first time it has been conferred. The award is represented by an exquisitely designed plaque of gold.

MISS MABELLE E. SMALE, who has been connected with the showroom and sales department of Fleck Bros. Co. of Philadelphia since 1917, has resigned from this postion in order to become associated with C. J. Rainear & Co., Inc., also of Philadelphia, in an executive sales capacity.

H. A. Thrush & Co. to Open Office in Mt. Vernon, N. Y.

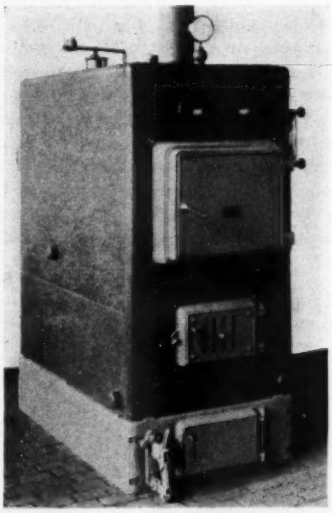
H. A. Thrush & Co. announce the establishment of a New York Metropolitan office at 272 East Third Street, Mt. Vernon, N. Y., for the convenience of the trade, jobbers, and distributors in that area. Thomas O. Lanphier is the New York manager and is assisted by factory field engineers operating in that area.

Arthur A. McKinley, plumbing contractor in Kansas City, Mo., died at his home in North Kansas City on January 24 in 63rd year, following a week's illness of pneumonia. He had been connected with the plumbing trade in Kansas City the last 35 years and had installed the plumbing in several large buildings in that city. His wife, a son and a daughter survive him.

NEW STORE·SHOP and JOB ITEMS

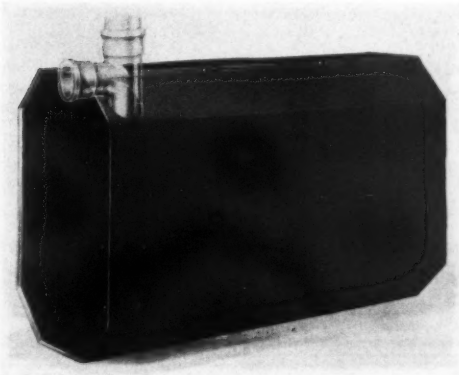
Boiler with Indirect Hot Water Coil

As an additional service for the heating boiler shown in the accompanying illustration, an indirect water heating coil has been incorporated in it. This coil is very plainly shown in the photograph. The coil is made of copper pipe and has been designed with the idea of making it large enough in diameter so as to prevent choking. The coil and cover assembly also have been made so as to be removed easily and replaced. This same coil may be used for instantaneous water heating as well as for gravity circulation through the hot water storage tank. Kewanee Boiler Corporation, with main offices and factory at Kewanee, Illinois, is the manufacturer.



A Horizontal Septic Tank Is Introduced

This horizontal septic tank has been made so as to provide a relatively long flow of sewage within the tank. The accompanying illustration shows a phantom view of the top intake which is designed to allow the sewage to enter the tank rapidly and to keep the intake baffle clear with a consequent reduction of the possibility of clogging at that point. The intake "T" extends above ground to provide a fresh air intake to the house stack. It also extends below the liquid level in the tank to seal the line against escaping gases. This tank is described as being heavily coated inside and out with mineral asphalt, all seams are electrically welded. The intake opening is designed to take a standard 4-in. cast iron or tile sanitary "T" fitting. The outlet opening has a set-in collar with a stop lug. San-Equip. Inc., E. Brighton and Glen Avenues, Syracuse, New York, is the manufacturer.



New Two Piece Closet Combination

A recently announced closet combination of the two piece type is shown in the accompanying illustration. It has been developed with the idea of conserving space and to eliminate the metal connection between the tank and the closet bowl. It is adjustable for roughing in and can be installed across the corner of a room if necessary. It has been made to eliminate the necessity of fastening the tank to the wall. Camden Pottery Company, of Camden, N. J. is the manufacturer.

and *NOW—the New*
NYE Universal Pipe Cutter
One or Three Wheel

THIS cutter while made with a swinging block wheel holder similar to the Saunders pipe cutter is of an entirely different construction.

It has large size rollers spaced farther apart than other cutters of same sizes to insure easier cutting.

When used as a three-wheel cutter this method insures a more equalized distribution of cutting, thus producing a uniform cut.

Its hollow body combined with the supported wheel block insures rigidity. This cutter is equipped with a spring to hold the block against the screw end of the handle.

Furnished with two rollers and one new Nye Thin Blade ground wheel as standard equipment. Can be furnished as a three wheel cutter at no extra cost.

No. 1—Cuts ⅛" to 1". No. 2—Cuts ½" to 2".

The NYE Tool & Machine Works
4120-30 Fullerton Avenue, Chicago, Ill., U. S. A.

BUY 3 DOZEN·· SAVE 90c

You save for your customer . . . when you install the TRIPLE SEAL. Now save for yourself—by buying in three-dozen lots. The cost is 30c a dozen less—90c *extra profit* for you on the order! Sold only through jobbers.

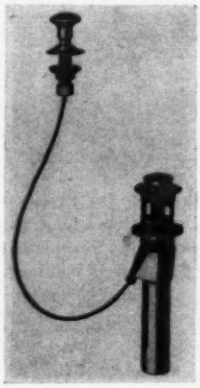
Let TRIPLE SEAL's triple action in preventing leaks build customer good will for you—as it has for thousands of other plumbing contractors. On a basis of performance—guaranteed four years—it's the cheapest ball your customers can buy.

RADIATOR SPECIALTY COMPANY
Charlotte, N. C. Los Angeles, Calif. Toronto, Canada

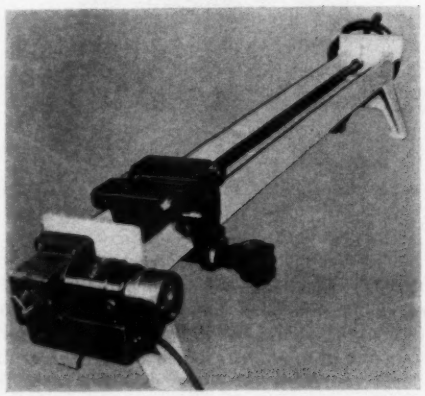
NEW AND IMPROVED
TRIPLE SEAL
TANK BALL

A New Pop-up Lavatory Waste

The accompanying illustration shows a pop-up waste which has just been placed on the market. It is described as employing the flexible rod principle. A bronze wire connects the knob with the stopper and operates through a close-coiled brass spring which serves as a housing. This spring is



designed to provide an element of elasticity to the shaft so that in the event the stopper is being held down arbitrarily, the spring expands sufficiently to absorb the action of the plunger wire. The knob is swiveled so that it turns independently of the wire. The stopper is non-turning. This pop-up lavatory waste has been made to be self-adjusting to every dimensional variation of centers and all standard lavatory types. The Chicago Faucet Company, located at 2700 No. Crawford Ave., Chicago, Ill., is the manufacturer.



A New Cutting Machine

A new cutting machine has just been added to a line of welding and cutting apparatus. This machine consists essentially of a steel channel supporting base, a means for moving the blow-pipe and adjustments for setting the blowpipe to cut bevels. Motion in two directions has been made possible, 45 in. longitudinally and 7¾ in. laterally. The machine can be furnished with two traverse hand-wheels for hand operation or with one hand wheel with 110- 115-volt universal motor, either of which can be used simply by throwing a lever. This line is made by The Linde Air Products Company, located at 205 E. 42nd St., New York City.

THE TRADE

News of what plumbing and heating contractors are doing the country over

President R. J. Barrett Announces Dates for Annual Convention

President Robert J. Barrett has announced the selection of May 28, 29, 30 and 31, 1934, as the dates for the holding of the Fifty-Second Annual Convention and Exposition of the National Association of Master Plumbers, in Washington, D. C.

This announcement is made after the tentative dates had been approved by the National Board of Directors.

President Barrett further announced the following Master Plumbers Divisional Committee, who will formulate plans and carry on activities in connection with the forthcoming convention and exposition.

Joseph A. High, Chairman, 1215 13th St. N. W., Washington, D. C.

A. R. McGonegal, 200 Clarendon Ave., Clarendon, Va.

J. Harry McCarthy, 3820 Veazey St. N. W., Washington, D. C.

William E. Miller, 942 Quincy St. N. W., Washington, D. C.

Arthur Snowden, 812 Kentucky Ave. S. E., Washington, D. C.

William E. Wolff, 55 Woodstock St., Clarendon, Va.

Francis C. Dorsey, 4520 Schenley Road, Baltimore, Md.

The Manufacturers' Divisional Committee, who will cooperate with the Master Plumbers Divisional Committee, will be composed as follows:

W. J. Kohler, Chairman (Kohler Co.).

H. M. Reed (Standard Sanitary Mfg. Co.).

George E. Hoffman (Crane Co.).

Charles B. Nash (American Radiator & Standard Sanitary Corp.).

N. J. Higinbotham (W. A. Case & Son Mfg. Co.).

W. S. Schaeffer (National Tube Co.).

C. W. Wanger (Woodward-Wanger Co.).

President Barrett has further announced the appointment of the following Wholesalers' Divisional Committee.

C. P. L. Moran, Chairman (Crane Co.).

Charles Ferguson (Noland Co.).

James A. Messer (James A. Messer Co., Inc.).

W. C. Hanson (E. G. Schafer Co.).

Richard J. Welch

John Borton (Hajoca Corporation).

U. G. Cunningham (Cunningham Plumbing Supply Co., Inc.).

Harrison C. Somerville (Thomas Somerville Co.).

President Robert J. Barrett has also announced the appointment of Richard J. Welch, 71 Middle Street, Lowell, Mass., as chairman of the scholarship committee, to serve the unexpired term of John J. Vogelpohl, whose death occurred January 17, 1934.

The unexpired portion of Mr. Welch's term as a member of this committee has been filled by Robert Vogelpohl, a son of John J. Vogelpohl, who has been carrying on a substantial amount of the detail work of the scholarship committee.

Keen interest has already been shown in the forthcoming National convention and exposition. Hearing of the selection of Washington, D. C. as the city for the 1934 annual meeting, many leaders in the industry have written the National office expressing their approval of Washington, and stressing their belief that it will prove an interesting location, for both the delegates and the exhibitors.

The Fifty-Second Annual Convention and Exposition will be held in Washington Auditorium. National President Barrett who is serving as General Convention and Exposition Chairman has stated that the Mayflower will serve as the Headquarters Hotel.

Texas Master Plumbers Will Meet in Galveston

The Associated Master Plumbers of Texas will hold their annual convention in Galveston, Tex., on April 16 and 17, 1934, according to announcement issued by Secretary E. H. Jordan, San Antonio, Texas.

Alabama Master Plumbers Will Meet in Birmingham

The Alabama Association of Master Plumbers will hold its annual convention on Monday and Tuesday, May 14 and 15, at Birmingham, Ala. This was decided at a recent meeting of the board of directors, according to announcement just received from Joseph W. Pate of Birmingham, Ala., director of the National Association of Master Plumbers.

Oklahoma Plumbers Will Meet in Tulsa

The Oklahoma State Association of Master Plumbers will hold its annual convention in Tulsa, Oklahoma, March 19 and 20, with headquarters at the Tulsa Hotel.

New State officers, left to right: Henry S. Blank, vice pres., Dayton; Howard C. Baker, pres., Toledo; Eb. Ellen, secty.-treas., Cleveland

N R A Code Main Subject at Ohio State Convention

DISCUSSION of the NRA Code and resolutions in memory of Past National President John J. Vogelpohl of Cincinnati were the outstanding features of the forty-third annual convention of the Ohio State Assn. of Master Plumbers, held at the Commodore Perry Hotel, Toledo, on Feb. 5-6-7.

A special memorial committee, composed of Edw. B. Kleine and Edw. Frank of Cincinnati and Wm. Haas of Dayton, was appointed to draft a resolution in honor of John Vogelpohl's memory. It was adopted by a silent rising vote, the members standing with bowed heads in respect to the beloved member.

The discussion on the Code followed addresses by Walter Eynon of Canton, state executive Sub-Committee of N. A. M. P. on N.R.A.; National Director Edw. B. Kleine of Cincinnati; and Ernest L. Flentje, representing National President Robt. J. Barrett.

Mr. Eynon's report was a masterpiece in detail and explicitness, covering, as it did, every move made by the National Association and how he had followed them up in the State Association.

Mr. Kleine gave a resumé of the activities of the N. A. M. P. Executive Committee and of the meetings with committees from other branches of the industry. He especially praised the co-operation received from the journeymen's organization.

Mr. Kleine said he regretted the action taken by the Wholesalers Committee and he did not believe that all wholesalers were in sympathy with their rulings.

He read a letter from President Robert J. Barrett, which stated that the National Association of Master Plumbers desired to leave the wholesalers declare their position in the industry. The letter also stated that the wholesalers have filed a code which legalizes things to which N. A. M. P. is opposed. He requested local associations to contact wholesalers in their various localities to ascertain whether they preferred to work under the new Code and sell direct to the public, or the old system of "Manufacturer to Wholesaler to Master Plumber," and to send these reports to the national office.

Mr. Barrett's letter also stated that he now rescinds his former request that members buy exclusively from wholesalers and suggests that they can now buy from the source that offers the best profit possibilities.

Ernest L. Flentje was the concluding speaker on the Code and explained the situation as it stands at the present time. (An outline of the code situation by President Robert J. Barrett is given on pages 45 and 46.)

Following his address Mr. Flentje answered questions from the floor and much interesting discussion was the result.

Mr. Flentje advised the members that if they sent any letters of protest on C.W.A., they should be explicit as to the number of the project involved, or they would not get any real action.

ELECTION OF OFFICERS

Howard C. Baker of Toledo and Henry S. Blank of Dayton were elected president and vice president, respectively, while Eb Ellen of Cleveland continues as secretary-treasurer.

Walter Eynon of Canton and Oliver Hoffman of Dayton were elected delegates to the National Convention, while the alternates are Dan MacDermid of Toledo and Martin Reilly of Youngstown.

Walter Eynon presented a fine report for the Apprenticeship Committee, and the association voted to continue the work of this committee.

Geo. F. Peters, pres., Toledo Association

Columbus, through Wm. Schneider, extended an invitation to the association to hold its 1935 convention in that city, and this was accepted.

In the opening session, with President Oliver Hoffman of Akron presiding, addresses of welcome were made by Geo. F. Peters, president of the Toledo Master Plumbers' Assn., and Mrs. Ruby Crampton, director of welfare in Toledo, representing Mayor Klotz, and Vice President Baker responded.

Mrs. Howard C. Baker, Toledo, vice president of the state auxiliary; Mrs. G. F. Peters, president of Toledo auxiliary; Mrs. U. S. Larsen, Toledo, chairwoman of the Ladies Entertainment Committee, and U. S. Larsen, general chairman of

the convention, were introduced and responded with short talks.

Memorial services were held for the members who have passed away during the past year.

The following committees were appointed by President Hoffman:

Special Memorial Resolution for John J. Vogelpohl, Edw. B. Kleine, Edw. Frank and Wm. Haas.

Resolutions: Henry S. Blank, Dayton; Chas. Arting, Mansfield, and A. Ellinger, Springfield.

Credentials: Dan MacDonald, Wm. Diresl, and Jas. Younkman, all of Toledo.

Memorial: Ed. D. Maurer, Cleveland; Martin Reilly, Youngstown, and Wm. Schneider, Columbus.

Grievance: Chas. L. Arting, Mansfield; T. C. Vanica, Bellefontaine, and John McGowan, Akron.

Press: U. S. Larsen, A. Behm and Wm. Cameron, all of Toledo.

GAIN IN MEMBERSHIP

The Auditing Committee was elected from the floor and was composed of Wm. Haas, Dayton; Harry Wormley, Struthers, and Ed. Maurer, Cleveland.

President Hoffman in his report of his activities during the past year covered the board meetings and zone activities. He also made several suggestions which were referred to the Resolution Committee.

In conclusion he reported a nice gain in membership for the year.

Eb Ellen, reporting as secretary-treasurer, showed a paid-up membership of 350.

The laxity in enforcement of the State Plumbing Code was discussed thoroughly on the floor and it was decided that some action should be taken to make the state officials see to it that the code is enforced.

It was moved that the incoming president appoint a committee to devise ways and means to have proper state inspection and secure the enforcement of the present state plumbing laws.

Walter Cahill of Akron, a member of the Essay Committee, presented a paper on conditions in the industry and stated that the plumber should keep his expenses down but continue to merchandise, use window displays and use advertising stuffers in his mail.

Dan MacDonald of Toledo, also a member of the Essay Committee, presented an interesting paper, advocating cooperation between the various branches in the industry.

The following resolutions were adopted:

No. 1.—That the Ohio Master Plumbers' Association convey to John Sorensen, Ravena, an honorary membership in the State association.

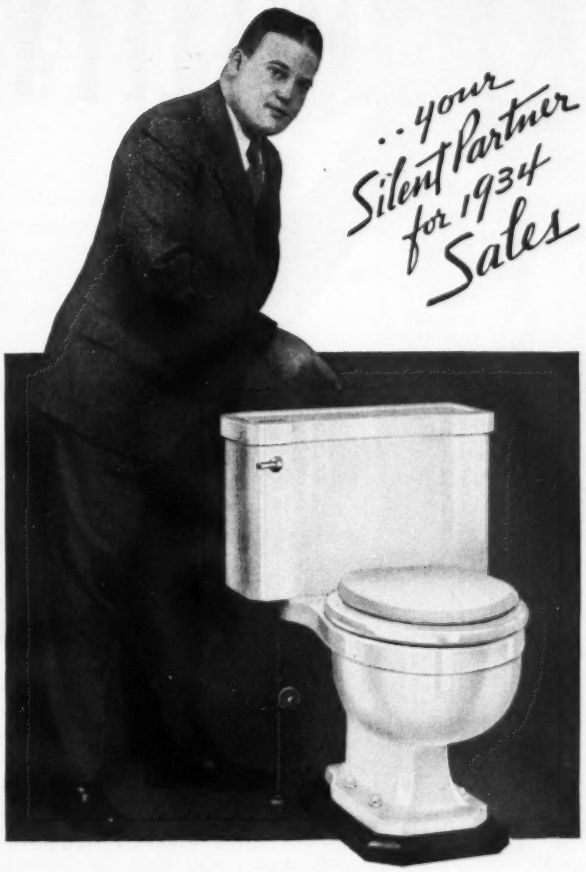
No. 2.—That Ohio Master Plumbers' Association go on record as not favoring any law that will prohibit Building and Loan Associations in the State of Ohio from receiving deposits from the public, and that our legislative committee be instructed to do all in its power to prevent such a law from being passed.

No. 3.—That it is to the best interests of the property owner to have a plumbing system properly designed and installed with fixed connections and branch wastes and vents, and with water services and water supplies of new Lead Industries Assn. standard lead waste or water pipe of weights suitable for the several purposes, or cast iron or brass pipe, such pipe to be installed by journeyman plumbers skilled in the art of installing and connecting by means of round wiped plumbers' joints.

No. 4.—That the incoming president appoint an educational committee to help locals plan interesting meetings.

The Sanitary Committee's report was accepted.

CLIMAX
..CLOSE-COUPLED..



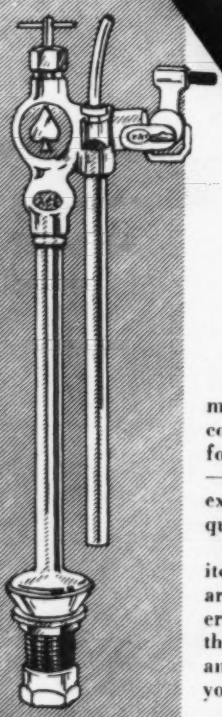
THIS quiet, free standing closet . . . styled and engineered to enhance the modern bathroom ensemble or for incidental replacement where space is limited . . . has won immediate and lasting popularity in the modern home.

If you are looking for a profit leader that combines appearance, utility and PRICE, look at Climax, for here is a close-coupled closet that is not "on trial."

See your jobber, or ask us to send you the "Inside Story of Climax." Make this Universal item your silent partner for 1934 sales.

UNIVERSAL SANITARY
MANUFACTURING CO. NEW CASTLE, PA.

The SWING is to QUALITY



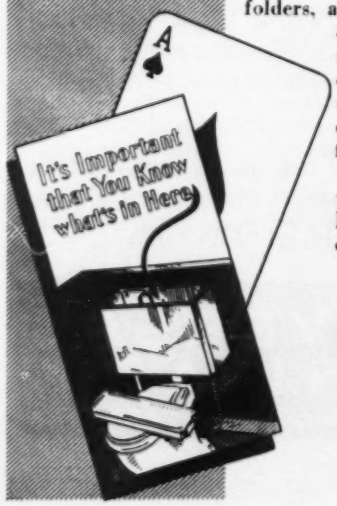
The cycle of the price mark has once more been completed. The public has found out—as it always finds out—that cheapness is in the end pretty expensive. The swing is definitely to quality.

ACE Ball Cocks and the other items of the ACE line of tank fittings are quality products. Your customers will appreciate being told about them. You will make a fair profit and, at the same time, be sure of your customers' lasting satisfaction.

Use ACE fittings on your next replacement job and specify ACE fittings on your new toilet tanks.

Have you sent for your supply of the envelope enclosures of which the cover is illustrated here? These folders, attractively printed in two colors, are available in reasonable quantities free of charge and are designed to help you show your customers why ACE tank fittings should be used.

Order direct or through your jobbing connection. Remember there is no charge for them.



NORTHERN INDIANA BRASS COMPANY
ELKHART, INDIANA

Vice President Howard C. Baker, Toledo; Henry S. Blank, Dayton; Wm. Schneider, Columbus; Bill Gesling, Lancaster; Wm. Grabowsky, Canton; Edw. B. Kleine, Cincinnati; H. M. Wormley, Struthers; Edw. Maurer, Cleveland, and Chas. Arting, Mansfield all reported as to conditions and activities in their various zones.

Special memorial resolutions were presented in honor of Past State President Frank C. Clemens, who passed away during the year.

The final report of the Credential Committee showed a registration of 75 delegates, 56 visitors and 63 ladies.

Among the Plumbing Contractors in Chicago

Building figures for Chicago suburbs show an encouraging increase during the month of January, being greater than December and also the corresponding month of last year. The January permits in villages and cities in the Chicago metropolitan area are 90 per cent higher than those of January, 1933, and are 39 per cent above the total for December, 1933. The total value of permits was $450,000 as compared with $237.00 the same month last year, and $324,000 in December, 1933. This increase is the result of good reports in a few communities, but is not taken as an indication of widespread building activity.

Dr. Herman N. Bundesen, president of the Chicago Board of Health has accepted an invitation from the Plumbing Contractors Association of Chicago to talk at on open meeting of the members of the plumbing industry, which will be held on Friday evening, March 2, at 8:30 p. m. in the Assembly Hall on the 12th floor of the Real Estate Board Building, 32 W. Randolph Street. The subject of Dr. Bundesen's talk will be "Amebic Dysentery, its Causes and the Means by Which the Recurrence of This Disease Can Be Prevented." A cordial invitation has been extended by President Chas. E. Gawne of the Chicago Association to the manufacturers and wholesalers of plumbing supplies and their employees, the master plumbers and their employees, and the Chicago Journeymen Plumbers' Association. It is confidently expected that between six and seven hundred members of the plumbing industry will be in attendance at this meeting.

The annual bowling tournament between the Milwaukee Master Plumbers and the Chicago North and West Side Master Plumbers' Pleasure Club will take place on Thursday, March 8th at the Lions Club Building, 4310 West North Avenue, Chicago. The Milwaukee master plumbers, about 25 in number, will arrive by bus about 4 o'clock and after the bowling match, will be the guests of the North and West Side Club at a dinner and entertainment to be held in the dining room of the club. It is expected that in addition to master plumbers, there will also be a number of supply men in attendance. The committee in charge of the arrangements for the bowling, dinner and entertainment is Fred W. Sorge, chairman; Robert Nelson, Chas. Burmeister, Ed. Hoelscher, Jr., C. E. Pullum and Emil Siegman, all of Chicago.

The first annual dinner and entertainment of the West Suburban Master Plumber's Association was held at the Carlton Hotel, Oak Park, on Saturday evening, January 27. The master plumbers and supply men with their ladies and invited guests numbered over 100. Chas. E. Gawne, president of the Plumbing Contractors' Association of Chicago, was the principal speaker at the meeting. The association organized a few months ago, comprising the master plumbers of Oak Park, River Forest, Riverside, Forest Park, Melrose Park, Maywood, Bellwood, LaGrange, Brookfield and Western Springs. The officers are President, John S. MacKenzie; vice-president, Fred Ruhnke, and secretary-treasurer, Alfred Miller.

Philadelphia Master Plumbers Hear Talk on Merchandising

The Master Plumbers Association of Philadelphia and the Philadelphia Gas Works Co. held their regular monthly meeting January 23 at Broad and Erie Streets in that city, with a good attendance. The main speaker of the evening was Professor Daubman of the Wharton School of the University of Philadelphia, who delivered a most interesting lecture on "Merchandising, Distribution and Salesmanship," in which he urged his hearers to study their market and sales prospects, to use the advertising matter supplied by manufacturers, and cash in on it.

Other speakers of the evening were W. H. Taylor, Jr., and C. W. Christman, both of the Philadelphia Gas Works Co., and George M. Hicks, president of the Philadelphia Master Plumbers Association.

Walter Raid and Edward Quaid, the retiring members of the Master Plumbers' gas committee, were given a rising vote of thanks for their work during the past year. The members, who will serve on this committee during the next twelve months are: William Hirst, chairman; Otto Geimeyer, Philip Hering and William Frey.

San Francisco M.P.A. Has New Office Secretary

After holding the post of office secretary of the San Francisco Master Plumbers Association for 14 years, Miss Nora Lyons has resigned to make preparations for her marriage. Miss Lyons' position is now occupied by Miss Doris McLeod, daughter of J. J. McLeod, corporation secretary of the association and a long time active member of that body. Miss McLeod is an accomplished athlete, holding the Pacific Association 440-yard swimming title; she also distinguished herself recently by swimming completely around Alcatraz Island, a distance of four miles in dangerous waters, a feat never before accomplished by man or woman.

San Francisco P. & H. Club Plays Ingleside Course

It was something more than just another golf tournament that drew the members of the Plumbing and Heating Club of San Francisco to the Ingleside course for lunch, a round of golf and a merry dinner party, on the afternoon of January 25, but for the sake of auld lang syne they wanted to bid farewell to Willard Rainwater, chairman of the club's golf committee for four years. Mr. Rainwater has been an able, popular and hard-working chairman. He will soon move to Los Angeles.

The afternoon's play yielded two winners—R. J. Fuite in Class A with a net 67 card, and M. B. Woodson in Class B with a net 68. Frank Mosher and Harry H. Hoopes each drew a birdie. Norman Farlow, one of the club's charter members, and Secretary Hal Sales assisted Chairman Rainwater in conducting the tournament. A feature of the occasion was the steak dinner served in the clubhouse, attended by nearly a dozen additional members who drove down late in the afternoon, anxious to join the others in the farewell festivities. Among the scores turned in were:

	G.	H.	N.
Camp	92	14	78
Kraus	100	21	79
Blair	90	16	74
Heil	91	14	77
Gabbert	97	18	79
McLeod	88	14	74
Higgins	93	18	75
Rainwater	95	18	77
Fuite	80	13	67
Mosher	99	17	82
Hoopes	97	27	70
Monihan	116	26	90
Greenberg	101	22	79
Woodson	88	20	68
Wilson	96	14	82
Petersen	99	24	75
Heleck	83	12	71

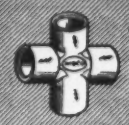
The SWING is to QUALITY

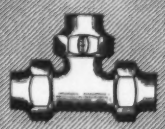
The public is learning to recognize quality and lasting satisfaction once more. Momentary cheapness is no longer an important consideration. Copper plumbing is therefore resuming its rightful place in the minds of the public.

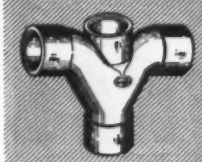
Copper plumbing in itself is a quality proposition. It deserves the most careful workmanship and the best of fittings. Nibco fittings will meet the approval of the most exacting plumbing craftsman, because they are designed and built for that purpose.

Whatever type of job you have you will find the right fitting in the Nibco line. Nibco manufactures flared tube fittings in regular and extra heavy strengths, and solder fittings, whether for waste or supply lines, up to 4" nominal pipe size. Bronze valves, straight and angle, of globe and gate types are offered for flared tube, solder or threaded connection.

Nibco pioneered copper plumbing fittings and Nibco still believes that quality in fittings is more important than price. Ask your jobber or write direct for complete information.







NIBCO

NORTHERN INDIANA BRASS COMPANY

ELKHART, INDIANA

Plumbing and Heating Industries Bureau Re-Organized

The Plumbing and Heating Industries Bureau of Chicago has been reorganized and the responsibilities for its future policies and financing have been placed in the hands of associations of manufacturers, wholesalers, and contractors as a result of meetings in the Bureau's offices in Chicago on February 23. The old corporation organized in 1919 under the laws of Indiana was dissolved by vote of the members and its assets transferred to a corporation organized under Illinois laws not for pecuniary profit. At this meeting, the following officers were elected to serve until October 8: John M. Kohler, president; John J. Calnan, vice president; Harry F. Beglen, treasurer, and Norman J. Radder, secretary.

In explaining this change, President John M. Kohler said: "The new set-up is entirely logical. As a strictly publicity organization, the Bureau naturally deserves the broad basis of support which only the present form of organization with associations as members can give it. This plan of organization, furthermore, adds to the effectiveness of the Bureau's work, inasmuch as it gives to its work the impartial and neutral point of view necessary for successful publicity work.

"With more than half the houses in the United States in need of modernizing, it is vitally important for the plumbing and heating industries to have an organization devoted to the job of keeping the products and services of these industries before the public by means of newspaper, magazine, and radio publicity.

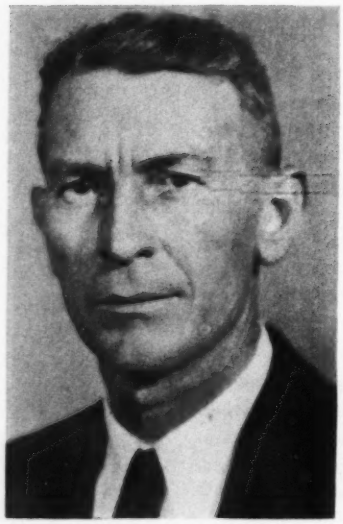
"This is the job to which the Bureau is committed and for which the cooperation of all associations is needed."

Connecticut Meets in May

The Master Plumbers Association of Connecticut, Inc., will hold its annual convention on May 9 at Meriden. A directors' meeting will be held on the evening previous to the convention, also in Meriden. I. B. Skau, Hartford, is president; John J. Fahy, Waterbury, first vice president; George E. Purdue, New Haven, second vice president; R. Davidson, Hartford, secretary; G. Wigglesworth, New Britain, treasurer; and J. M. Forger, Norwalk, financial secretary.

Tennessee Picks May Date

The Associated Master Plumbers of Tennessee will hold their annual convention on May 21 in Chattanooga. G. Limberg of Memphis is president of the state association as well as state executive on the plumbers' NRA code work for that state.



G. A. Thompson
Re-elected
President

West Virginia Shows Growth

C. V. Swann
Re-elected
Secretary

THE 11th annual convention of the Master Plumbers Association of West Virginia, meeting in Charleston on February 5 and 6, heard a report to the effect that its membership had increased by about 300% in the last year. This growth is due to the interest in the code movement shown by State President G. A. Thompson, and C. V. Swann, secretary-treasurer of the association. Upon his return from the national convention at New Orleans last summer, Mr. Swann was so enthusiastic over the possible betterment of conditions under the code that he and Mr. Thompson gave a great part of the year to spreading the news and to organizing new locals at Bluefield, Beckley, Parkersburg, Wheeling, Morgantown, Clarksburg and Fairmont, besides adding members in cities already organized.

G. A. Thompson was re-elected president, as was C. V. Swann of Huntington, who succeeds himself as secretary-treasurer. K. M. Buford of Bluefield succeeds H. C. Hammann of Martinsburg as vice president. The board of directors for the year is composed of Harvey Nelson of Parkersburg, Lou Nau of Wheeling, R. H. Holtzworth of Huntington, Lou Caskey of Martinsburg, Roy Keiser of Beckley and J. Guy Hawkins of Fairmont.

Committees appointed by President Thompson to serve the convention were as follows: Resolutions Committee, S. H. Holtzworth of Huntington, Lou W. Nau of Wheeling and John Shanklin of Charleston. Auditing Committee: K. M. Buford of Bluefield, Charles McMunn of Clarksburg and J. Guy Hawkins of Fairmont. Credentials Committtee: A. O. Lee of Charleston, G. T. Johnson of Bluefield and R. L. Maxwell of Beckley.

Robert J. Barrett, president of the National Association of Master Plumbers, J. Frank Bentley, secretary, and J. G.

Hildebrand, executive secretary, were in attendance. Mr. Barrett went into some length in explaining code matters, and his speech is reproduced elsewhere in this issue. Mr. Bentley also addressed the convention, and Mr. Hildebrand undertook the job of answering questions concerning the code after President Barrett's talk.

Closing features of the two-day convention was the annual banquet and dance at the Kanawha Hotel, following which a program of songs and dances was given.

AUXILIARY DOINGS

Dinner at a Charlestown restaurant, followed by bridge at the Kanawha Hotel provided entertainment for the women attending the convention Monday night. They were guests at the Kanawha at a luncheon Tuesday, and in the afternoon were taken for a tour of the state capitol under the direction of Mrs. J. F. Staley and Mrs. A. O. Lee.

Mrs. L. C. Swacker, of South Charleston, was elected to the presidency of the state division of the woman's auxiliary of the Master Plumbers' Association at a meeting held Tuesday at the Kanawha Hotel. Other officers elected are:

Mrs. J. H. Druen, of Huntington, vice president; and Mrs. J. K. Matthews, of South Charleston, secretary and treasurer.

The board of directors includes:

Mrs. L. H. Caskey, of Martinsburg, Mrs. Arch P. Fleming and Mrs. W. C. Layman, of Fairmont; and Mrs. Fred M. Ferguson, of Huntington.

Submits Report of Bureau Activities

Norman J. Radder, secretary-manager of the Plumbing and Heating Industries Bureau of Chicago, gave an interesting report of the publicity activities of the Bureau during 1933, at the recent annual meeting of the Bureau's board of directors. This report showed that daily papers with a circulation of 150,000,000 published 50,000 inches of bureau-prepared articles on the modernization of plumbing and heating equipment, in the past year, and it also told of the Bureau's cooperative work with national magazines, syndicates, and press services as well as with 67 radio stations.

Portland, Oreg., Master Plumbers Elect Officers

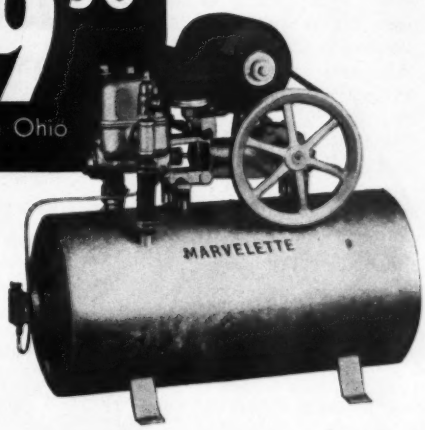
A. L. Kuntz was elected President of the Master Plumbers Association of Portland, Oreg., to succeed Fred Van Hoomissen at the annual election meeting, February 6, in the Builders' Exchange. Otto Schulz was elected vice-president; Walter J. Widmer, secretary; Henry X. Brown was re-elected financial secretary for the 32nd consecutive year, and R. D. Rennie was elected treasurer.

Mr. Van Hoomissen, who headed the local plumbers for the past three years, was elected on Board of Directors for 1 year—as chairman of entertainment and publicity committee; H. H. Colliver, elected on Board for 1 year term as chairman of apprenticeship and conference; Tom A. Frewen, elected for 2-year term on Board, chairman of legislature and trade relations committee and Mr. Rennie, elected for 2-year term, chairman of finance and membership committee.

Tentative plans were discussed for observance of the local association's 50th anniversary in conjunction with the Oregon State Convention to be held in Portland, May 11th and 12th. Mr. Frewen was appointed historian and directed to compile a history of the plumbing industry in Oregon, some months ago.

The Portland Association discussed the matter of the telephone company's policy of listing unlicensed and unbonded plumbers in the business section of its directory with those who comply with the city ordinances

$49.50
F.O.B. Salem Ohio



SELLING FAST!
BECAUSE OF UNMATCHED
VALUE!

WHAT makes the Deming "Marvelette" the leading VALUE in water systems of its type?

1. Full Cushioned Power . . . EXCLUSIVE with the "Marvelette!" Heavy cushions of live rubber eliminate metal-to-metal contacts between pump, pump supports and service lines. (Note cross-section detail of rubber cushion).

2. Automatic Air Control.
3. Repulsion-Induction Motor.
4. Stainless Steel Piston Rod.
5. Capacity . . . 250 gallons per hour.

These and other features combine to make the "Marvelette" a fast-selling water system. Other Deming Water Systems at new low prices offer corresponding values. Write for particulars.

Don't Read LOOK!

THE Hays-Erie Stop and Drain is cut wide open to the stem. Your experienced eye will see its many good points. It's priced right too.

Except for Udylited handle it's all brass. Stem threads always engage. It has high lift stem—large waterway—upper seat for repacking and Jewett ring packing. Send for supply of folders and Cat. No. 1 describing the full line of Hays Plumbing Brass Goods.

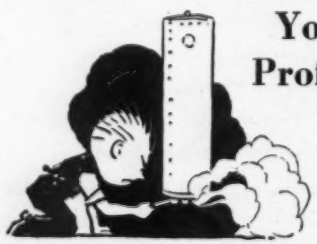
HAYS MFG. CO.
726 W. 12th St., Erie, Pa.

Manufacturer to Wholesaler to Plumber

HAYS

Plumbing Brass
Bath Fixtures
Copper Plumbing
Gas Service Goods
Water Service Goods
Iron Products
Tapping Machines

End All This Trouble And Save Your Profits!



The plain facts about range boiler installations are these—you stake your profit, your reputation and the possibilities of future business on the Range Boiler you sell. If it fails—you lose. Now, if you install a high quality PENNSYLVANIA Range Boiler, you're taking no chances. Your hard-earned dollars are yours for keeps. Think it over. Then investigate this ALL WELDED and RIVETED & WELDED GALVANIZED and Everdur COPPER Range Boilers.

Write for more information.

PENNSYLVANIA RANGE BOILER CO.
Established 1895
24th & Washington Ave., Phila., Pa.

PENNSYLVANIA RANGE BOILERS

Convention Dates

March 5-9, 1934.—A. O. B. A.—The annual convention and oil burner show of the American Oil Burner Association, at the Commercial Museum in Philadelphia, Pa.

March 12, 1934.—KANSAS.—The annual convention of Kansas Master Plumbers Association, at Wichita, Kans., with headquarters at the Allis Hotel.

March 15, 1934.—I. O. M. A.—The tenth annual convention of the Independent Oil Men's Association of New England, at the Statler Hotel, in Boston.

March 19 and 20, 1934.—OKLAHOMA.—The annual convention of the Oklahoma State Association of Master Plumbers, at Tulsa, Oklahoma, with headquarters at the Tulsa Hotel.

March 21, 1934.—IOWA.—The annual convention of the Iowa Master Plumbers Association, Inc., at Waterloo, Iowa, with headquarters at the Hotel President.

March 26, 1934.—ARKANSAS.—The annual convention of the Arkansas State Master Plumbers' Association, in Little Rock, Ark., with headquarters at the McGehee Hotel.

April 9 and 10, 1934.—MISSOURI.—The annual convention of the Missouri State Association of Master Plumbers, at St. Louis, Mo., with headquarters at Hotel Jefferson.

April 10, 1934.—MASSACHUSETTS.—The annual convention of the Massachusetts State Association of Master Plumbers, at Boston, Mass., with headquarters at the Copley-Plaza Hotel.

April 16 and 17, 1934.—TEXAS.—The annual convention of the Associated Master Plumbers of Texas, at Galveston, Texas, with headquarters at the Buccaneer Hotel.

April 16 and 17, 1934.—NORTH DAKOTA.—The annual meeting of the State Association of Master Plumbers of North Dakota, at Grand Forks, N. D.

April 16, 17 and 18, 1934.—NEW YORK.—The annual convention of the New York State Association of Master Plumbers, in New York City, with headquarters at the Hotel Pennsylvania. All sessions will be held in the convention hall of that hotel.

May 5, 1934.—I. M. P. A.—The annual convention of the Idaho Master Plumbers' Association, at Boise, Idaho.

May 7 and 8, 1934.—FLORIDA.—The annual convention of Florida State Association of Master Plumbers and Heating Dealers, Inc., at Gainesville, Fla., with headquarters at the Graham Hotel.

May 8 and 9, 1934.—INDIANA.—The annual convention of the Indiana Association of Master Plumbers, at Indianapolis, Ind.

May 9, 1934.—CONNECTICUT.—The annual meeting of the Master Plumbers Association of Connecticut, Inc., at Meriden, Conn.

May 11 and 12, 1934.—OREGON.—The annual convention of the Oregon State Association of Master Plumbers, at Portland, Oregon.

May 14 and 15, 1934.—ALABAMA.—The annual convention of the Alabama Association of Master Plumbers, at Birmingham, Ala.

May 21, 1934.—TENNESSEE.—The annual convention of the Associated Master Plumbers of Tennessee, at Chattanooga, Tenn.

May 21 to 24, 1934.—CALIFORNIA.—The annual convention of the California State Master Plumbers' Association, at Sacramento, Calif., with headquarters at Hotel Senator.

May 22-25, 1934.—H. P. A. C. C. N. A.—The annual convention of the Heating, Piping and Air Conditioning Contractors National Association, at Atlantic City, N. J. Headquarters will be at the Ambassador Hotel.

May 28 and 29, 1934.—MONTANA.—The annual convention of Montana Master Plumbers' Association, at Miles City, Mont.

May 28, 29, 30 and 31, 1934.—N. A. M. P.—The Fifty-second Annual Convention and Exposition of the National Association of Master Plumbers, at Washington, D. C. The convention and the exposition will be held in the Washington Auditorium. Headquarters at Mayflower Hotel.

June 20-22.—A. S. H. V. E.—The American Society of Heating and Ventilating Engineers' semi-annual meeting at The Inn, Buck Hill Falls, Pa.

Philip Heck, proprietor of the Frank R. Heck Plumbing & Heating Company in Birmingham, Ala., died recently at his home in that city in his 69th year. His wife, three daughters and one son survive him.

Pennsylvania Master Plumbers Hold Midwinter Meeting

The Pennsylvania State Association of Master Plumbers held its fourth annual midwinter meeting at the Penn Harris Hotel in Harrisburg, Pa., January 31, with an attendance of nearly two hundred members.

Among the outstanding features of the meeting were addresses by Robert J. Barrett of Washington, D. C., president of the National Association of Master Plumbers; Walter C. Williams of Wilkes-Barre, national director; Robert Dick of the Lead Industries Bureau; Wm. E. Foley of New York City, president of the New York State Association of Master Plumbers, and Raymond Heffer of the Pennsylvania State Department of Health.

Other features of the meeting were the reading of the revised Code of Fair Competition of the Contracting-Retailing of the Plumbing Industry by Robert H. Pflug-Felder, and a sketch entitled: "How to Arrive at Your Correct Selling Price of a Job," by Walter Raid, Harry Stilwell, Jr., and Robert Hicks, all members of the Philadelphia Association.

By way of introduction to his address National President Robert J. Barrett thanked the officers and members of the Pennsylvania Association of Master Plumbers for the loyal support they are giving his administration and for the large increase in membership—125 per cent—during the last seven months. He also thanked them for the great patience they are showing in the matter of making a code. Speaking about the code he told about the obstacles which the National Association of Master Plumbers have had to meet. He praised the loyalty of the principal manufacturers who have supported the Master Plumbers' Association 100 per cent, and he censured the wholesalers for not co-operating and for tearing down what has taken years to build up—not all wholesalers but some of them, and he cited some of the cases that had come up at various meetings.

While at State conventions and at the National convention in New Orleans he had always thought and battled for the established channels of distribution "from manufacturer to wholesaler to master plumber," he now had changed his mind and admitted he had made a mistake. He denounced the wholesalers for their unwillingness to co-operate, and said that everything is over in regard to the code as far as the wholesalers and the National office is concerned. His plan would be to buy direct from the manufacturer, or adopt co-operative buying, a centralized agency or a purchasing agent.

President Barrett also referred to the soil pipe code and told why it was reopened.

Among the other speakers at the meeting were: State President Wm. A. Schneider of Scranton, who presided at the meeting; Jos. G. Hildebrand, executive secretary of the National Association of Master Plumbers; Past State President David S. Sanderson, and George W. Shock of the Philadelphia Gas Works Co. of Philadelphia.

Buffalo Master Plumbers Elect Officers

The Master Plumbers' Association of Buffalo, N. Y., held its annual meeting on Thursday evening, February 8, and elected the following officers for the ensuing year: President, William Ludlow; vice president, Julius G. Irr; secretary, William G. Maurer, and treasurer, William A. Keller. George W. Frank, formerly secretary of the National Association of Master Plumbers, officiated at the installation of the new officers.

Rockaways Master Plumbers Celebrate First Anniversary

Nearly 175 persons attended the first anniversary dinner and dance of the Association of Master Plumbers of the Rockaways at the Hotel Washington, Belle Harbor, N. Y., Saturday evening, January 27.

William McNaught, president of the association, headed the list of speakers who were introduced by the unit's executive secretary, J. F. Harrington, who acted as toastmaster.

President McNaught addressed the gathering with a message of thanks and paid tribute to the membership for its splendid work during the year. He advised the master plumbers present to continue giving the general public the best in sanitary plumbing installations and to charge reasonable prices. The association, he said, was always anxious to maintain the best relations with the property owners and would be pleased to investigate and rectify any job done by a member of the association that was not satisfactory to the owner. He urged the public to call such matters to the attention of the organization as a test case of its sincerity.

Commissioners Frank C. Keller of the Department of Buildings, M. R. Iorio of the Water Department, and A. J. Kenny of the Highway department expressed their thanks to the association for the complimentary remarks paid them by the toastmaster in behalf of the organization. Deputy Commissioner of Buildings Clifton A. Ripperger also spoke of his contacts with the association's officials and said he would continue to cooperate with the group because it serves the interests of the people of the community.

Borough President George U. Harvey said the association had done a fine job for the betterment of local trade conditions, and he complimented Jerry Harrington for his good work as executive secretary of the organization.

William E. Foley, president of the State Association of Master Plumbers, installed the new officers of the Association which were: William McNaught, president; Walter W. Hock, 1st vice-president; David Mackler, 2nd vice-president; Frank J. Donnelly, recording secretary; Peter M. Scott, treasurer, and A. Abramson, sergeant-at-arms. William Rogers is chairman of the board of governors.

Harry Hoffman, executive chairman of the entertainment committee, and his assistants were congratulated on their efforts which made the affair such a pleasant success.

The first anniversary dinner and dance of the Rockaways Division of the Master Plumbers Association of Greater New York

BURKS
SUPER-TURBINE
PUMPS

CONDENSATION RETURN UNITS

SERIES 4700

Returns condensate to heating boilers *promptly, surely, and safely.* Powerful suction lift and air-handling ability prevents steam-binding. A pump that will carry that boiler safely through when *your back is turned!*

A truly *super pump* on hot water service. No pistons to leak and require repacking. One moving part—the impeller—develops delivery pressures up to 100 pounds per square inch.

It's an all-bronze raceway and impeller pump with stainless steel shaft mounted in over-size ball bearings. In short, it's a *genuine Burks Super Turbine!*

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DECATUR PUMP COMPANY DECATUR, ILLINOIS

Whether it's a Ground Key Stop,—
a Bath Trap,—a Closet Flange,—
or a Boiler Coupling . . . . . .

this mark is your "Guarantee" of Satisfaction

K Co

C-101
Tee Handle
Stop & Waste
Roundway

Insist upon the name "Kitson."

REMEMBER, Kitson Products are distributed through Plumbing Jobbers and Wholesalers.

KITSON CO.
Westmoreland & Stokley Sts.
Phila., Pa.
Department "D"

The Old Metal Market

New York
(Dealers' Buying Prices, Cents a Pound)

No. 1 Heavy copper and wire	6.12½	to	6.25
Light copper	5.25	to	5.50
Heavy yellow brass	3.50	to	3.75
Clean light brass	3.00	to	3.25
New brass clippings	4.75	to	5.00
Zinc	2.25	to	2.50
Aluminum turnings, borings	6.00	to	6.25

Pittsburgh

Crucible copper	6.12½	to	6.25
Heavy copper and wire	5.50	to	5.75
Light copper	5.12½	to	5.37½
Red brass (No. 1 Comp.)	5.00	to	5.12½
New brass clippings	4.62½	to	4.87½
Cocks and faucets	3.25	to	3.50

Cincinnati

Crucible copper	6.00	to	6.25
Heavy copper and wire	5.50	to	5.75
Light copper	5.00	to	5.25
Red brass	5.00	to	5.25
Heavy yellow brass	3.00	to	3.25
Light brass	2.50	to	3.00
New brass clippings	5.00	to	5.25
Scrap zinc	2.00	to	2.25
Block tin	40.00	to	41.00

Cleveland

Crucible copper	6.00	to	6.25
Heavy copper and wire	5.50	to	5.75
Light copper	5.00	to	5.25
No. 1 Composition red brass	5.00	to	5.25
Heavy yellow brass	3.50	to	3.75
Light brass	3.00	to	3.25
New brass clippings	5.00	to	5.25
Cocks and faucets	4.00	to	4.25
Zinc	2.25	to	2.50
Block tin pipe	42.00	to	43.00
Solder joints (close cut)	5.50	to	6.50

Chicago

No. 1 Heavy copper and wire	5.75	to	6.00
No. 2 Heavy copper and wire	5.00	to	5.50
Light copper	4.50	to	4.75
No. 1 Composition red brass	4.37½	to	4.87½
Heavy yellow brass	3.25	to	3.50
Light brass	2.50	to	2.75
New brass clippings	4.50	to	4.75
Cocks and faucets	3.50	to	3.75
Old zinc	2.25	to	2.50
Solder joints (close cut)	4.50	to	5.00
Block tin pipe	36.00	to	38.00

St. Louis

Crucible copper	6.00	to	6.25
Heavy copper and wire	5.75	to	6.00
Light copper	4.75	to	5.00
No. 1 Composition red brass	4.75	to	5.00
Light brass	3.00	to	3.25
New brass clippings	4.50	to	4.75
Zinc	2.50	to	2.75
Block tin pipe	45.00	to	46.00
Solder joints (close cut)	6.50	to	7.00

Detroit

Crucible copper	6.00	to	6.25
No. 1 Heavy copper and wire	5.75	to	6.00
Light copper	4.50	to	5.00
Red brass (No. 1 comp.)	4.50	to	4.75
Heavy yellow brass	3.25	to	3.50

WOMEN'S ACTIVITIES

By DOROTHY EDWARDS

Ohio Women's Auxiliary Holds Annual Meeting

The Women's Auxiliary to the Ohio State Association of Master Plumbers held its annual convention at the Commodore Perry Hotel, Toledo, Ohio, February 5, 6 and 7, and elected the following officers: President, Mrs. Howard C. Baker, Toledo; vice president, Mrs. Edward Maurer, Cleveland; secretary, Mrs. Daniel MacDermid, Toledo, and treasurer, Mrs. Wm. Schneider, Columbus.

President Mrs. Howard C. Baker presided at the convention, and reports were presented by all the committees and by representatives of the various locals.

Gifts were presented to the retiring officers, after which the business session was adjourned, and the visiting delegates were entertained by the Toledo Auxiliary.

A card party was held Tuesday afternoon. Wednesday morning the delegates visited the Art Museum, and following luncheon they were guests at a card party with souvenirs and prizes.

Wednesday evening all the auxiliary delegates joined the association members and enjoyed the entertainment provided by the Toledo Master Plumbers' Association, which included a theater party, a banquet and a ball.

Fifth Annual Convention of Wisconsin Women's Auxiliary

The fifth annual convention of the Women's Auxiliary of Wisconsin Master Plumbers' Association, was held in the Schroeder Hotel, Milwaukee, on January 23 and 24.

The business session was presided over by State President Mrs. Otto Waskow of Milwaukee.

Mrs. Walter Dusold of Milwaukee extended a welcome to the visitors and this was responded to by Mrs. Robt. Liss, National President of the Women's Auxiliary. Mrs. Liss thanked the Wisconsin Auxiliary for the hearty co-operation given to the National officers and President Mrs. Waskow thanked Mrs. Liss for her kind words.

A Memorial Service was held in honor of a deceased member, Mrs. Wm. Gest. Chaplain Mrs. Rose Friend eulogized Mrs. Gest, and Mrs. A. A. Hoffman sang "The Old Rugged Cross." She was accompanied by Mrs. Frank C. Colwell, pianist.

After the election of officers the ladies attended a luncheon in the Hotel Schroeder. The tables were beautifully decorated.

Mrs. Walter Dusold was toastmaster and Natl. President Mrs. Liss gave an interesting talk.

Mrs. Chas. Pelunek, first president of the Milwaukee and Wisconsin Auxiliaries, was one of the honored guests.

After the luncheon the new officers were installed by Chaplain Mrs. Rose Friend, who instructed each officer as to her duties.

Mrs. John Feiner of Racine acted as marshall.

The new officers are: President, Mrs. L. C. Pugh, Racine; first vice president, Mrs. Chas. Priegel, Milwaukee; second vice president, Mrs. David Stern, Milwaukee; third vice president, Mrs. Chas. Heffling, Jr., Milwaukee; recording secretary, Mrs. Jos. J. Mueller, Wauwatosa; corresponding secretary, Mrs. Jas. A. Murphy; treasurer, Miss Clara J. Wittig, Milwaukee, and chaplain, Mrs. Rose Friend, Milwaukee.

The entertainment committee of the State was headed by Mrs. L. R. Schmaus, chairman, and Mrs. E. Dobner, vice chairman.

Mrs. E. Dobner was also chairman of the local committee, and Mrs. Chas. Heffling served as vice chairman.

The state reception committee was headed by Mrs. Geo. Stoche and Mrs. Geo. Block, while the local reception committee was headed by Mrs. Geo. Block and Mrs. Chas. Priegel.

On Wednesday the ladies were taken on a trip through the Schlitz Brewery and in the evening they attended the dinner dance of the Master Plumbers' Association.

Rockaway Women's Auxiliary Elects Officers

The Women's Auxiliary of the Master Plumbers' Association of Rockaway, N. Y., held its annual meeting recently and elected the following officers for the ensuing year: President, Mrs. Max Tremper; vice president, Mrs. Harry Hoffman; treasurer, George F. McGovern; secretary, Mrs. Jacob Goldberg; sergeant-at-arms, Mrs. Samuel Friedlander; board of trustees: Mrs. Wm. Rogers, Mrs. Walter W. Hock and Mrs. Wm. McNaught. Mrs. Peter M. Scott and Mrs. Murray Rosen will serve on the entertainment committee.

Mrs. Max Tremper

Jersey City Auxiliary Re-Elects Its Officers

The following officers were elected and installed at the meeting of the Women's Auxiliary of the Jersey City Master Plumbers Association. Mrs. Robert Gilligan, president; Mrs. John T. Edge, vice president; Mrs. R. MacDonald, secretary; Mrs. John Conlin, treasurer; Mrs. John Sharrock, Mrs. C. Kappmeier and Mrs. John J. Corcoran, trustees and Mrs. Louis Komoski, sergeant at arms.

On Tuesday, January 23 the members attended a dinner and theater party to celebrate the re-election of all the officers of the preceding year. Plans have been formulated and a very busy year anticipated in the interest of sanitation in Jersey City.

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Tempered Steel
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Queens County Auxiliary Plans Charity Party

The Women's Auxiliary of the Master Plumbers Association of Queens County, L. I., N. Y., held its regular monthly meeting on Wednesday, February 7, at the Knights of Columbus hall in Jamaica, L. I. The new president, Mrs. Henri Billharz, presided at the meeting. Plans were made for a charity card party to be held some time in May. The proceeds from this party will be given to the Welfare Camp, which is maintained by the Master Plumbers Association of Queens County.

Chicago South Side Auxiliary Elects Officers

The annual meeting and election of officers of the South Side Women's Auxiliary was held on Wednesday evening, February 7th at the Broadview Hotel, Chicago, 24 members being in attendance. The following officers were elected: President, Mrs. Walter Compton; vice-president, Mrs. John J. Delehant; secretary, Mrs. John Guldan, and treasurer, Mrs. Chas. Haigh. The ladies had a social hour in connection with the meeting. There are 38 members in good standing in the auxiliary, and it is the intention of the new officers to put on a membership drive to build up the organization. Mrs. Fred W. Hager, president of the Illinois State Auxiliary, made a very fine report on the state convention held at Quincy, stating that they had a very successful meeting and were entertained royally while in that city.

Missouri Auxiliary Will Meet April 9 and 10

The Women's Auxiliary of the Missouri State Association will hold its annual convention in conjunction with the Golden Anniversary State Convention of the Missouri State Association of Master Plumbers, at Hotel Jefferson, in St. Louis, on April 9 and 10.

The St. Louis Contracting Plumbers Association is providing ample entertainment for the ladies.

Mrs. Henry Bartosch of St. Louis is president of the Missouri State Auxiliary. The St. Louis Auxiliary extends a hearty welcome to all the members of the State Auxiliary to attend the convention.

The St. Louis Women's Auxiliary of which Mrs. J. Fowler is president, holds its meetings at the Carpentier Branch Library at 1 p. m. on the second Thursday of each month. It is thought that by having a luncheon before the meeting instead of refreshments after the meeting more ladies will attend, and still not interfere with their 6 o'clock dinner appetites. An added feature is an attendance prize every meeting.

North Shore Auxiliary Celebrates 11th Anniversary

Celebrating the eleventh anniversary of the Women's Auxiliary of the North Shore Master Plumbers' Association, its annual dinner dance was held on Saturday night, February 17, at the North Shore Hotel, Evanston, Ill. The affair was attended by more than 100 members of the industry and their ladies. Mrs. Julia McKenna, the newly elected president, presided and Mrs. George A. Kearney acted as toastmaster. Among the guests of honor were Mrs. Robert Liss, president of the National Auxiliary, Mrs. Fred Hager, secretary of the Illinois State Auxiliary, and Mrs. Oscar Larson, secretary of the Illinois State Auxiliary, together with their husbands. Wm. R. Brookman, secretary of the Illinois Master Plumbers' Association, who spoke briefly on the value of the Auxiliaries in furthering sanitary laws, was in attendance with Mrs. Brookman. Mrs. Liss and Mrs. Hager complimented the North Shore Auxiliary on the success of their party and the excellent progress they had made in building

up the Auxiliary. John J. Cahill gave a very interesting talk on the history of the North Shore Association. Mrs. George A. Kearney, first vice-president of the Illinois Women's Auxiliary, Mrs. Fred Flader, chairman of the dinner dance committee, and Mrs. N. Mergenthaler, retiring president of the Auxiliary, who had served during the past three years, were also introduced and gave brief talks. Following the dinner, the balance of the evening was enjoyably spent in dancing.

Philadelphia Auxiliary Entertained by Four Hostesses

On February 1, the members of the Philadelphia Women's Auxiliary met for its monthly meeting at 1938 Market Street in that city with 17 in attendance. Cards and games were played. Sauerkraut, smoked meat, rolls and coffee were served. Hostesses for the meeting were Mrs. Feeney, Mrs. Deegan, Mrs. Henderson and Mrs. Beahm. The next meeting will take place the first Thursday of March at the same address, 1938 Market Street.

Alameda County Auxiliary Installs New Officers

With another successful year in prospect, and still further membership gains in sight, the ladies of the Alameda County (Calif.) Auxiliary installed their officers for 1934 at a luncheon meeting at the Berkeley City Women's Club, January 15, attended by practically the entire membership. Those assuming office were: Mrs. Lester Jackson of Berkeley, president; Mrs. Jas. F. Mauzy of Walnut Creek, vice president; Mrs. W. H. Picard of Oakland, secretary; and Mrs. Harry LeGassick and Mrs. James Rankin, treasurer and marshall, respectively, both of Oakland. With appropriate ceremonies each lady assumed her pledge of office, administered by Mrs. W. de J. Evans, a past president. The luncheon table was tastefully decorated with spring flowers.

At the conclusion of the luncheon service the ladies played cards, prizes being offered for high score at each table. The hostesses for the occasion were Mrs. J. W. Rankin, Mrs. Arthur Johnson and Mrs. W. de J. Evans.

Cincinnati Auxiliary Re-Elects Officers

The Women's Auxiliary of Cincinnati, Ohio, held a regular meeting at the headquarters of the Master Plumbers Association in the Building Industries Building in that city and re-elected the following officers for another year: President, Mrs. George Doench; vice president, Mrs. J. Hirth; secretary, Mrs. Edw. Frank, and treasurer, Mrs. Wm. Tillett.

Following the installation of the officers the social hour was devoted to cards. Refreshments were served.

Jacksonville Auxiliary Honor Guests from New Jersey

The Jacksonville, Florida, Women's Auxiliary entertained on February 7th with a bunco party at the residence of Mrs. Harry Pepper. Mr. and Mrs. J. M. Heidweiler of Trenton, N. J., were guests of honor. After the game refreshments were served. The auxiliary then presented Mrs. Heidweiler with a pair of beautiful hand-painted plaques.

Portland, Oreg., Auxiliary Plans Card Party

On February 7 at 12:30 the Portland, Oregon, Women's Auxiliary met for luncheon and cards at the home of Mrs. E. Stone, 7804 N. E. Sandy Boulevard. There were 17 in attendance. Mrs. G. O. Kendall carried off a silver creamer, sugar bowl and tray for her high score in bridge. Those in charge of this meeting were Mrs. Stone and Mrs. Radford.

A card party is planned for March 3 at the Rose City Golf Club.

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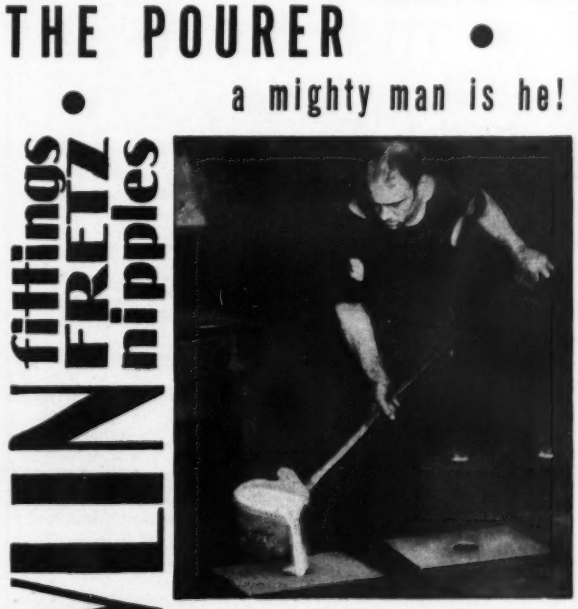
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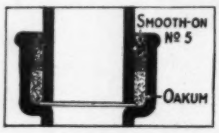

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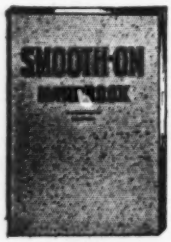

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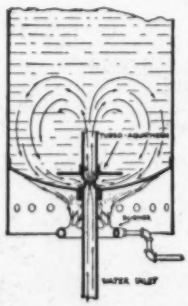

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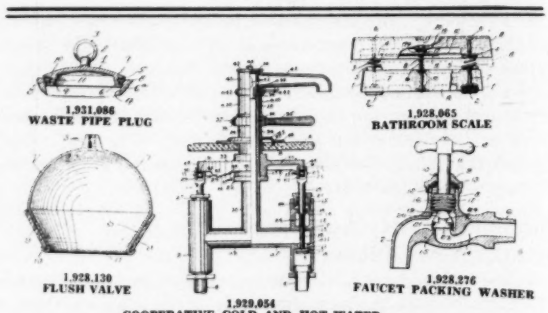
Plumbing Department

1,931,086. Waste Pipe Plug. Robert G. Schwarz, New Orleans, La., and Adolph H. Vorbusch, Pass Christian, Miss.

1,928,130. Flush Valve. Luther L. Kauffman, Rochester, N. Y.

1,929,054. Co-operative Cold and Hot-Water Bib Cock. Stephen J. Carmody, Bellingham, Wash.



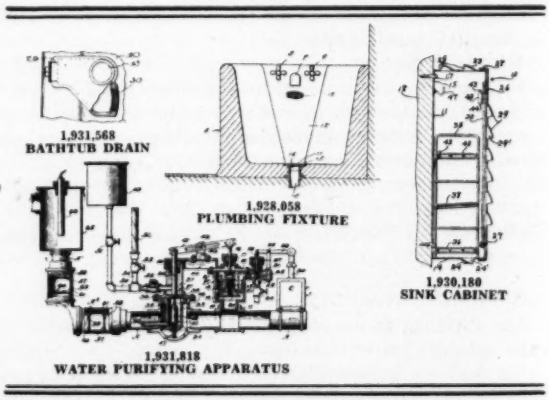
1,928,065. Bathroom Scale. Thomas J. Little, Jr., Birmingham, Mich.

1,928,276. Faucet Packing Washer. William C. Wood, Washington, D. C.

1,931,568. Bathtub Drain. Frank G. Brotz, Kohler, Wis., assignor to Kohler Company, Kohler, Wis.

1,928,058. Plumbing Fixture. Jessie Kennison, Madison, Wis.

1,930,180. Sink Cabinet. Joseph S. Naylor, Elmhurst, Ill.



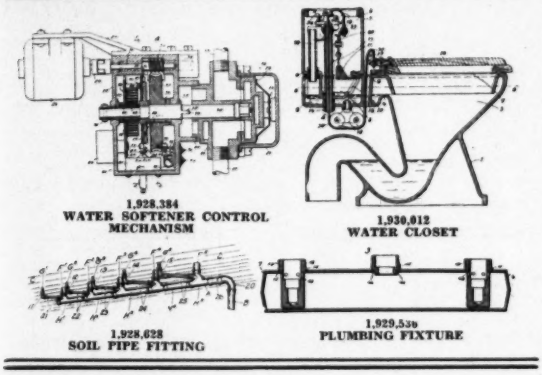
1,931,818. Water Purifying Apparatus. Harry Buxton Hartman, Buffalo, N. Y.

1,928,384. Water Softener Control Mechanism. Edward P. McCanna, Rockford, Ill., assignor, by mesne assignments, to The Permutit Company, Wilmington, Del., a corporation of Delaware.

1,928,628. Soil Pipe Fitting. Thomas P. McDermott, Boston, Mass.

1,930,012. Water Closet. Olof Lundberg, Saltsjobaden, Sweden.

1,929,536. Plumbing Fixture. John Schulte, Jr., Cincinnati, Ohio.



1,928,384
WATER SOFTENER CONTROL MECHANISM

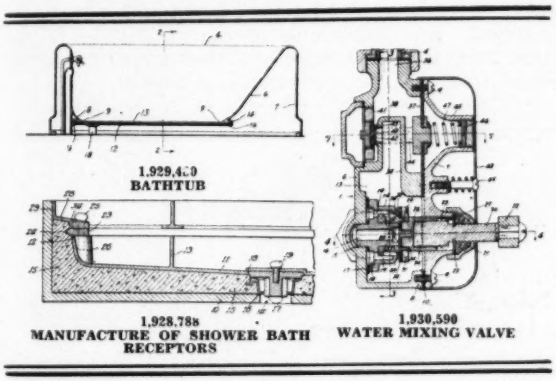
1,930,012
WATER CLOSET

1,928,628
SOIL PIPE FITTING

1,929,53b
PLUMBING FIXTURE

1,929,480. Bathtub. Frank Cappuccio, Oakland, Calif.

1,928,788. Manufacture of Shower Bath Receptors. Arthur E. Jones, Elkhart, Ind., assignor to Henry Weis Manufacturing Company, Inc., Elkhart, Ind., a corporation of Indiana.



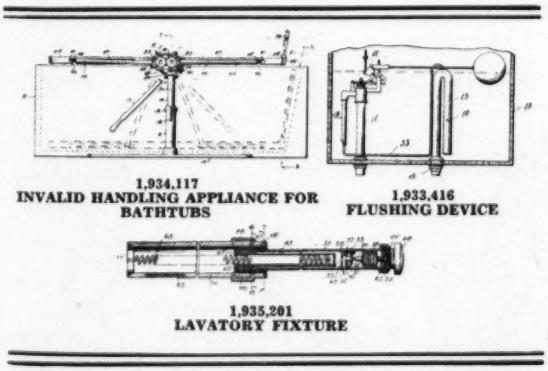
1,929,480
BATHTUB

1,928,788
MANUFACTURE OF SHOWER BATH RECEPTORS

1,930,590
WATER MIXING VALVE

1,930,590. Water Mixing Valve. David H. Ebinger, Columbus, Ohio, assignor to The D. A. Ebinger Sanitary Manufacturing Company, Columbus, Ohio, a corporation of Ohio.

1,934,117. Invalid Handling Appliance for Bathtubs. Jackson H. Daley and Albert B. Christensen, Eureka, Calif.



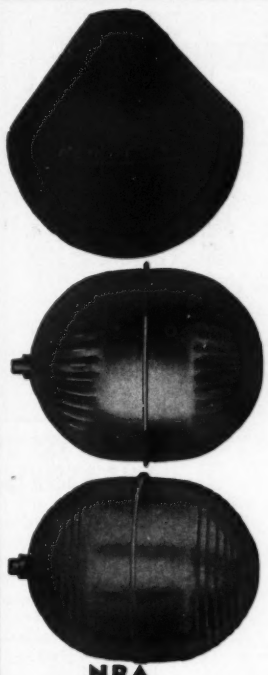
1,934,117
INVALID HANDLING APPLIANCE FOR BATHTUBS

1,933,416
FLUSHING DEVICE

1,935,201
LAVATORY FIXTURE

1,933,416. Flushing Device. William J. Collison, Bakersfield, Calif.

1,935,201. Lavatory Fixture. Modesto Callejo, Bronx, N. Y.



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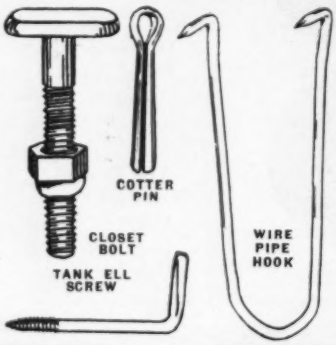

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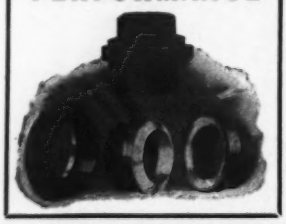

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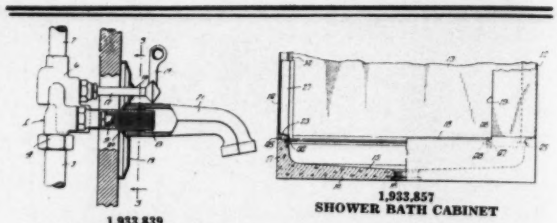


1,933,839. Bathroom Fixture. Leon Bloch, Cleveland Heights, Ohio.

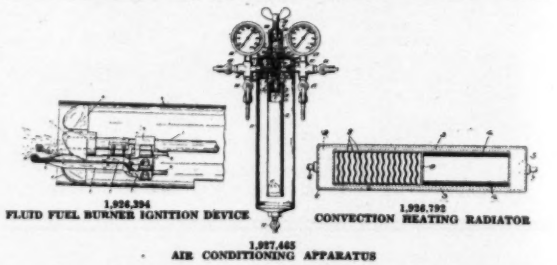
1,933,857. Shower Bath Cabinet. Arthur E. Jones, Elkhart, Indiana, assignor to Henry Weis Manufacturing Co., Inc., Elkhart, Ind., a corporation of Indiana.

Heating Department

1,926,394. Fluid Fuel Burner Ignition Device. Ira E. McCabe, Chicago, Ill.

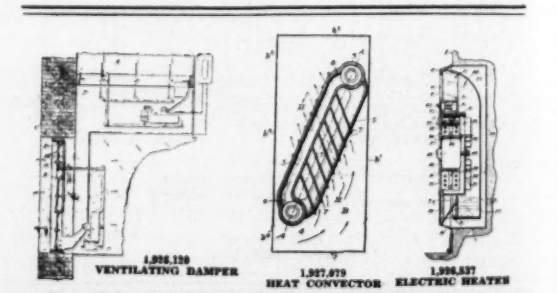
1,926,792. Convection Heating Radiator. Russell C. Reichart, New York, N. Y.

1,927,465. Air Conditioning Apparatus. Robert D. McIntosh, River Forest, Ill., assignor to the Imperial Brass Mfg. Company, Chicago, Ill., a corporation of Illinois.



1,926,120. Ventilating Damper. Morton O. Snediker, Chicago, Ill., assignor to Powers Regulator Company, Chicago, Ill.

1,927,079. Heat Convector. Robert S. Wentworth, Johnstown, Pa., assignor to National Radiator Corporation, Johnstown, Pa., a corporation of Delaware.



1,926,537. Electric Heater. George D. Hoffman, Pasadena, Calif., assignor, by mesne assignments, to Thermador Electrical Manufacturing Company, Los Angeles, Calif., a corporation of California.

BEER *and* BAR EQUIPMENT

SECTION OF DOMESTIC ENGINEERING

Remodeling Food and Liquor Stores Brings Business

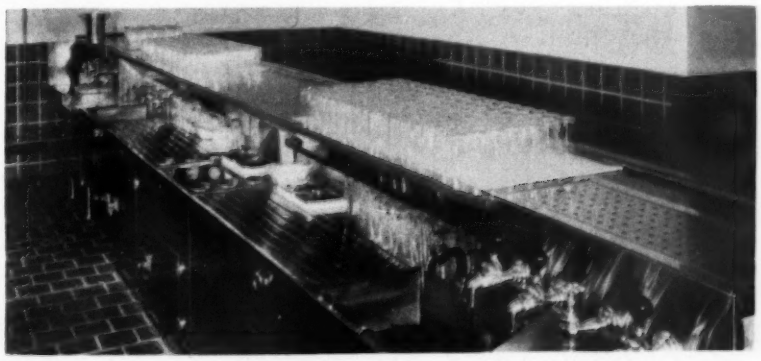
This beer and bar equipment market continues to reveal business getting possibilities for the men who keep after it. Remodeling of present dispensaries and the recruiting of new places as some of the older stores drop away, are the sources from which this business is coming.

The market is still less than a year old. Its first hurricane rush is a matter of too recent history to need rehearsing. The coming of repeal introduced a new factor which is now a powerful influence in guiding the direction from which business can be anticipated.

That influence is the making over of older quarters, in hotels, in restaurants, in clubs and in all places where food service can go hand in hand with beverage dispensing. The natural trend of the revived industry helped along by the prevailing tendency of liquor control laws, throws these two services—food and liquor—together.

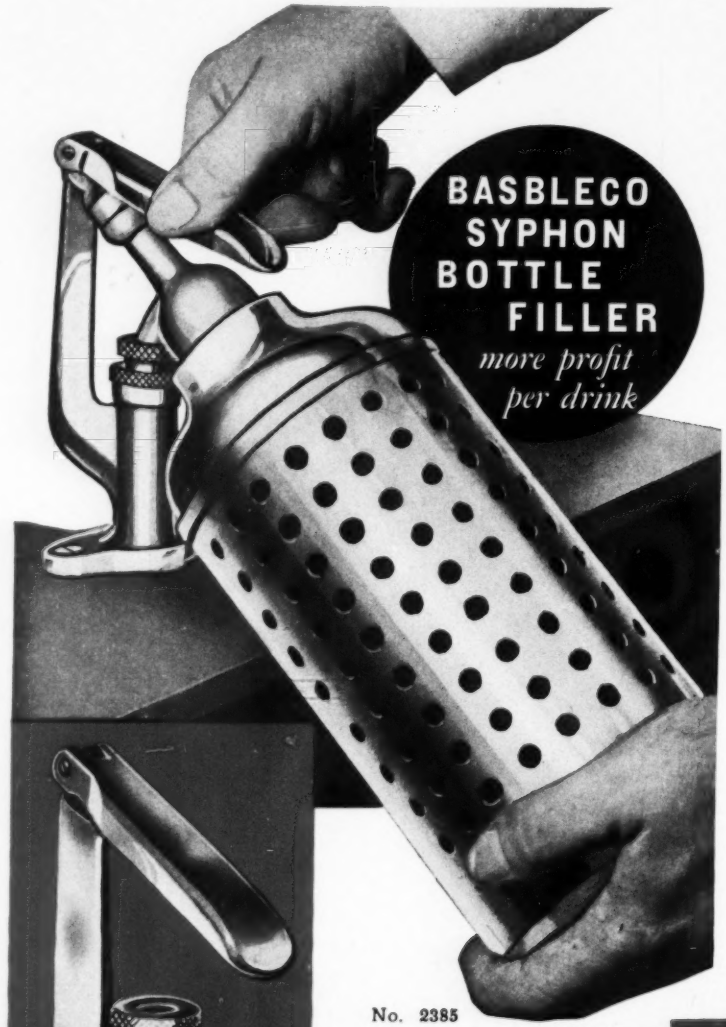
In attracting the patronage to make such establishments pay, the questions of modern arrangements, up-to-date equipment, the latest in service and decoration are all important. The dealer doesn't have to wait for the equipment to wear out—as the public turns to the newer places, the older ones must re-equip. And in that market, the dealer in beer and bar equipment and their related mechanical and piping services, has his opportunity to secure business.

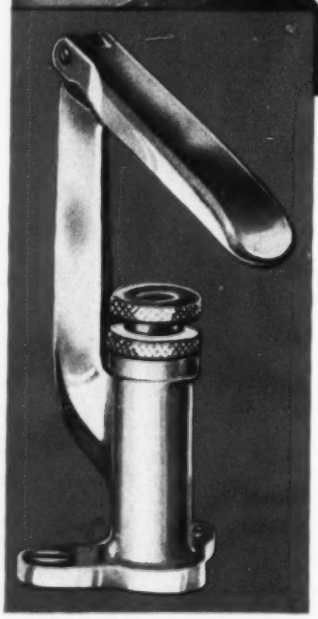
Meeting Public Demand for Up-to-Date Service Requires Frequent Remodeling



A NEW RAPID SELLER

PROFIT for You and Your Customer





No. 2385 outfit comes complete, including bottle guard, and filler guard as shown, together with No. 2-95 shut-off valve and connection for ¼", 4-ounce block tin pipe. Shank of filler valve is standard for ⅞" drain-board thickness.

We also manufacture Bar Fixtures, Carbonators, Soda Fountains, Coffee Urns, Ice Cream Freezers

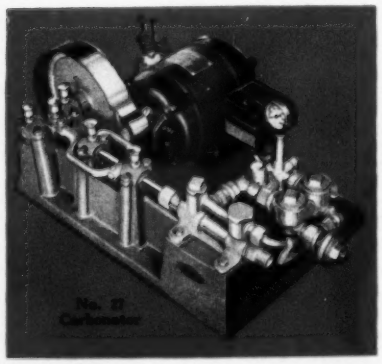
Show your customer definite extra profits. Show him how to serve better drinks for less money. A seltzer drink is better than a drink mixed with soda or ginger ale, and costs much less to make, with the Basbleco Syphon Bottle Filler. Syphon bottles can be filled at less than 1c each when carbonic gas costs 20c per pound.

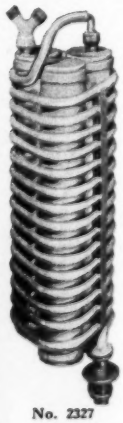
The bartender fills his own bottles at odd times. Speedier, cheaper, more convenient bar service. The equipment pays for itself. When carbonic gas is used for serving beer, the same gas tank can be used for making seltzer by using both high and low pressure CO_2 regulators, attached to the tank by a No. 2390 double connection.

If draft beer is served at bar, a No. 2327 cooler is located in beer coil box. Otherwise, a cooler box is necessary. If city water is cloudy or unfit, a water filter may be used.

The No. 27 carbonator, recommended for this service, produces a super-carbonated water without attaining the usual high commercial filling pressures. It pumps measured amounts of gas and water through the No. 2327 coolers, at which point complete saturation is accomplished at low temperatures. Operated from a lighting circuit. In ordering, specify alternating or direct current, and voltage.

THE BASTIAN-BLESSING COMPANY
240 E. Ontario St., Chicago





No. 2327

BASTIAN-BLESSING

Manufacturers of approved dispensing equipment for nearly half a century.

Here the attractiveness of this bar installation has been handled with the importance which it warrants. Of equal importance are the hidden piping connections

Sanitary Connections for Bars

Beer is as perishable as milk or any other food. Also, it is just as subject to contamination. Because of this, bar connections should be planned carefully.

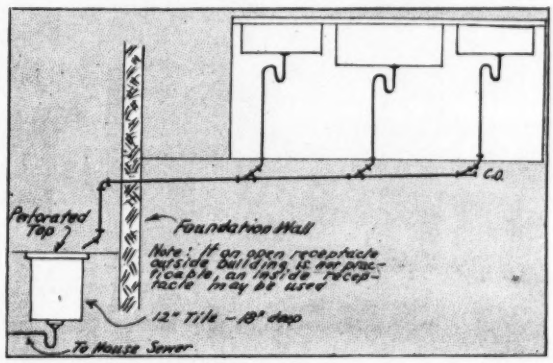

C.O.
Perforated Top
Foundation Wall
Note: If an open receptacle outside building is not practicable, an inside receptacle may be used
12" Tile - 18" deep
To House Sewer

Fig. 1—Each branch is trapped separately for protection

By R. M. Starbuck, Jr.

NOW that the sale of beer has become common, proper provision for handling the wastes of bars where beer is dispensed, has become a matter of concern. The plumbing trade itself needs to gain a better knowledge of the subject, and the plumbing departments of cities and towns need to be wide awake on the subject.

The fact of the case is that very few cities or towns govern this practice with anything like the intelligence that the subject calls for. If a bar is connected in proper shape, it often is more due to the plumber's knowledge of how the job ought to be done, than because of the enforcement of any particular law governing this practice. Nevertheless, many instances exist of cities that have gone at this thing as a problem needing to be handled.

In our eight illustrations, Figs. 1 to 8, are shown that number of different methods of making bar connections followed by eight eastern cities.

It seems to us that these eight methods are quite typical of the practice of the entire country. They show direct and indirect waste connections, a variety of uses of traps, discharge being made in various ways, and with a number of special schemes employed.

The arrangement, Fig. 2, shows bar connections of very simple construction. No trap is used on any one of the three wastes. However, the arrangement is very simple and direct. Discharge into the floor drain is

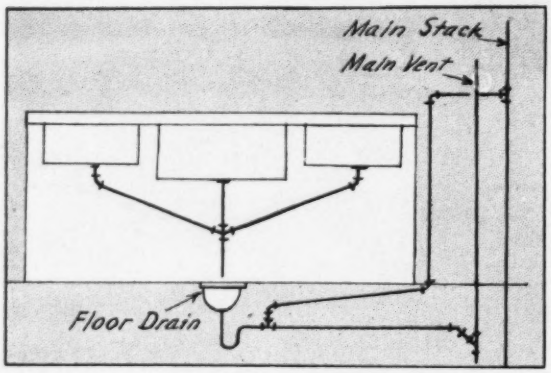
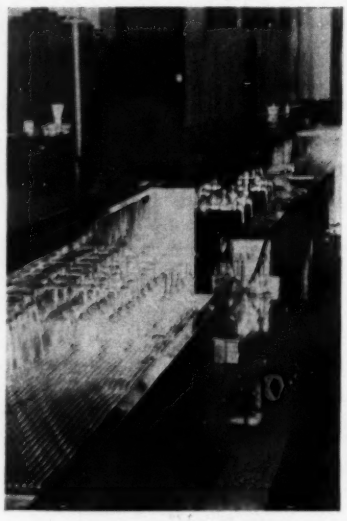


Fig. 2—This arrangement shows bar connections of simple construction

according to practice allowed by most plumbing codes which regulate bar and soda fountain waste connections.

The drawing, Fig. 3, illustrates connections of the same general character as Fig. 2. Here, however, disposal of the bar waste is made into an open fixture in the cellar. Passage of cellar odors through the untrapped waste connections presents a danger which is not found in Fig. 2, as the bar waste in that case opens into the same atmosphere that the bar itself is in. It has to be remembered that food and drink is served at these bars, and just as great precautions must be taken against the possibility of contamination as in the case of refrigerators.



"Few cities govern connections with intelligence subject calls for"

The city plumbing code governing the particular installation of Fig. 3, calls for the use at the bottom end of the waste of a flap valve or return bend, to prevent entrance of cellar odors. We do not feel that a connection which has to depend upon either one of these devices is entirely correct. Of the two methods, use of the return bend is the more effective, but at the same time it presents quite a serious obstacle to the free flow of waste.

In the case of Fig. 4, a single trap is used for the entire bar. While the connections in Fig. 1 are good, they have one objectionable feature—collection of filth in the three waste connections, may throw fowl odors into the room and into the compartments of the bar. The use of a trap as in Fig. 4 largely overcomes this. It is true, however, that with such simple connections as in Fig. 2, the waste piping may be kept free from filth by liberal flushing of hot water. Here, of course, comes in the matter of the intelligent attention to cleanliness on the part of attendants, and of course this is an important feature which only constant supervision will bring about. No plumbing laws can guarantee these things. One bar will be immaculate and another one filthy, the difference in these conditions being due to the difference in attention given by the attendants.

Fig. 5 shows a single drum trap serving all bar connections. With the trap placed at the extreme end of the bar, several of the wash compartments will of necessity have unprotected floor wastes of considerable length.

This illustration shows in addition to the bar connection, a refrigerator connected into the same line of waste, which is entirely correct. Principles applying to bar connections must always be of the same general character as for refrigerators, as each have to do with the handling and storage of food and drink.

In the preceding illustrations we have considered two types of connections, where the bar waste connections are not trapped at all, and where a single trap serves all connections. A third type is shown in Fig. 5, where each branch is separately trapped. Whether one or the other of these three types of connection is to be used, depends somewhat on existing conditions. In such a set-up as Fig. 1 shows, it would certainly be wrong not to trap the bar at all, and it would not be well to use a single trap, the reason in each case being that there would be long lengths of fouled waste pipe, unprotected, to throw foul odors through the waste outlets. We feel, then, that in such a case as this, it is well to trap each waste. Fig. 1 shows the bar waste discharging into a receptacle outside the building. If because of cold exposure, or for some other reason, this is not advisable or practicable, the receptacle may be placed inside.

Fig. 6 shows a very good layout. All drips discharge into floor drains which are trapped. The important feature is the use of a fresh air inlet. This practice is not a common one, but a good one it seems to us. At best, bar wastes are filthy things, and it would seem that this fresh air inlet is capable of setting up a free circulation of air through the waste lines, which would be beneficial.

Fig. 7 shows another form of bar connections, with all the branches separately trapped, and with a refrigerator trapped and discharging into

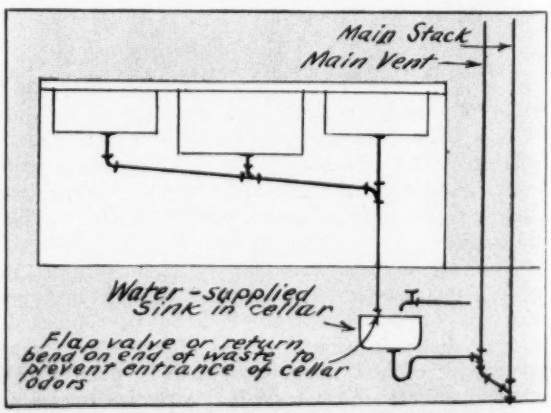
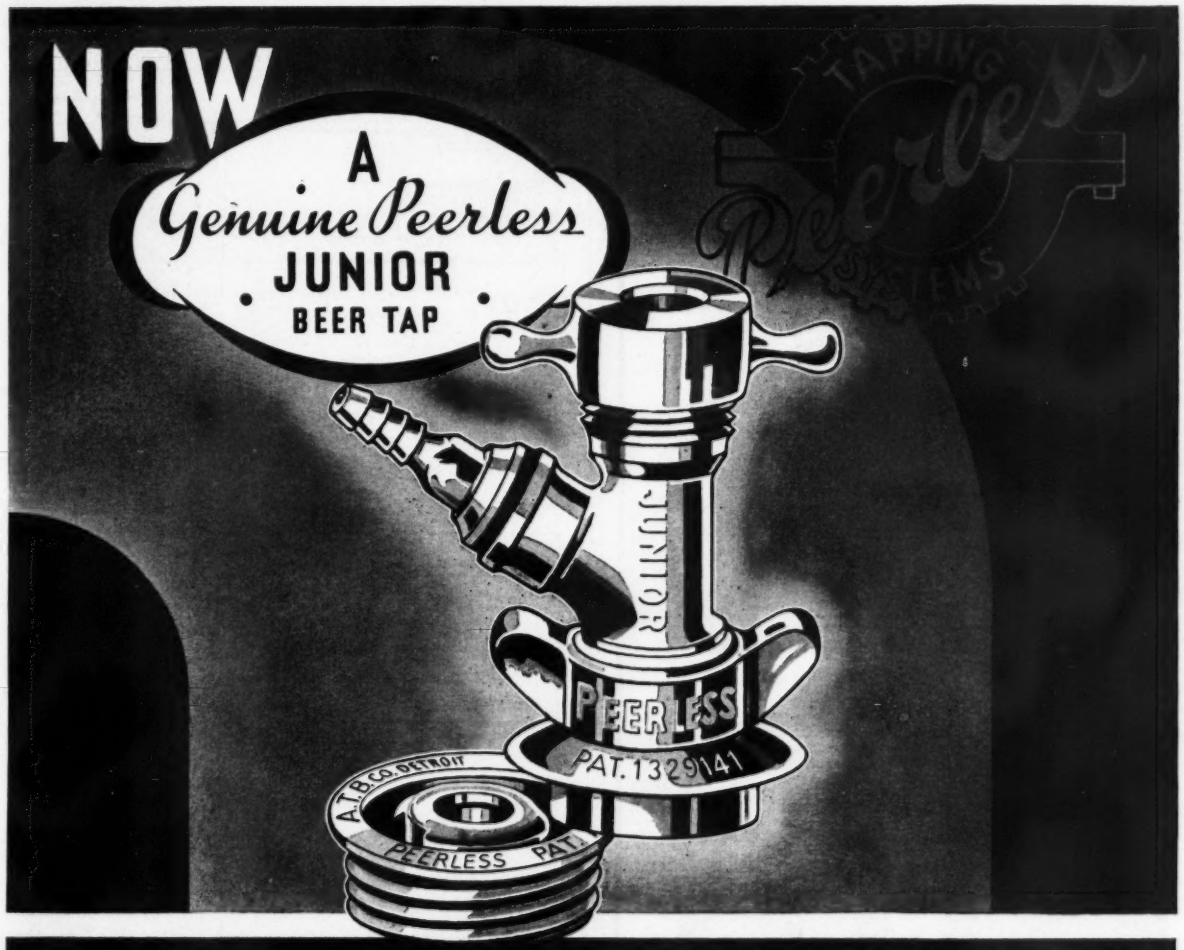

Main Stack
Main Vent
Water-supplied Sink in cellar
Flap valve or return bend on end of waste to prevent entrance of cellar odors

Fig. 3—A city code calls for use of a flap valve here



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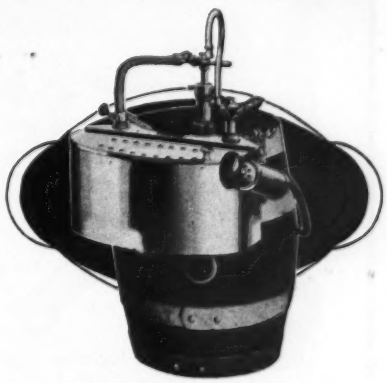
A valuable addition to the Peerless Line is this Junior Tap. It measures up to its bigger brothers in everything but height and finish—carries the same guarantee of service and sells for a much lower price—By far, the great majority of Brewers and Dispensers use The Peerless System because it provides 120% safer seal as proved by test . . . If you are not using the Peerless System, it will pay you to change. Peerless saves on Beer, Barrels and Corks . . . It is a super safeguard against loss of flavor and "life" of your brew. Write for literature and prices. • The Genuine Peerless System is Durable • Sanitary • Simple • Self-Centering • Positive • Economical.



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Made in sizes to suit your requirements, ranging from the large Hotel size to the small size for Home use. Send for prices.

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American Tap Bush Company, Detroit, Mich. Manufacturers of Beer handling equipment for over 38 years and makers of the famous Peerless Portable Beer Coolers and Fountains.

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BEER DISPENSING EQUIPMENT NEEDS FROM US

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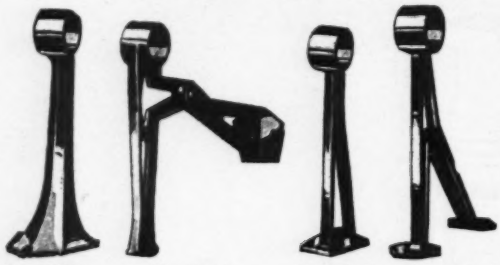

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3 4

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No. 2346—Y Distributor

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Grand Haven Brass Foundry
Grand Haven, Mich.

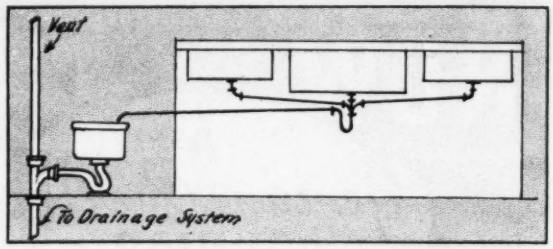


Fig. 4—In this case, a single trap is used for the entire bar

the same line of waste.

All of the bar connections shown in Figs. 1 to 7, inclusive, are what are known as indirect connections. Most plumbing codes demand that bars be indirectly connected. A few, however, call for a direct connec-

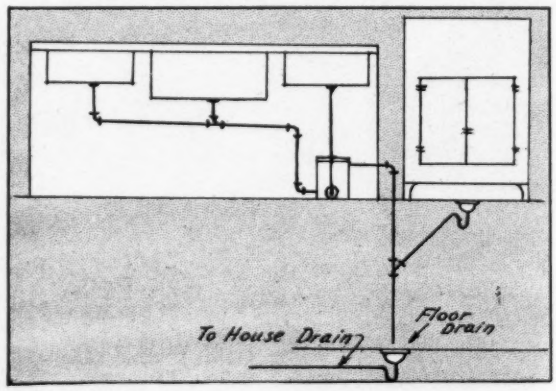


Fig. 5—This shows a single drum trap serving all of the bar connections

tion, and still others allow either direct or indirect waste connections to be used.

Fig. 8 shows the use of direct waste connections. The only objection to the use of this type of connection that

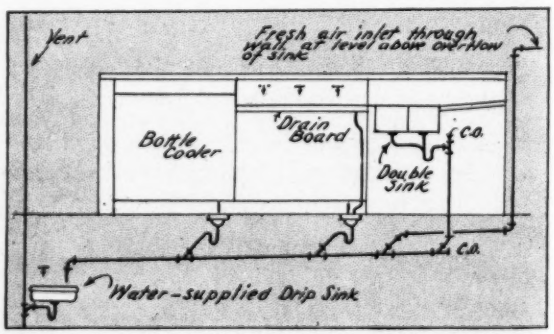


Fig. 6—Here are connections having fresh air inlet

we know of, is the possible danger of siphonage of the trap seal, in which event, there would be direct communication with the sewer. This would be a bad condition, especially because of the close proximity of food and drink.

As the trap is connected in Fig. 1, there is a greater degree of protection than there would be if the waste were taken out at the top of the trap, as is the common practice.

There is one danger that sometimes develops in the

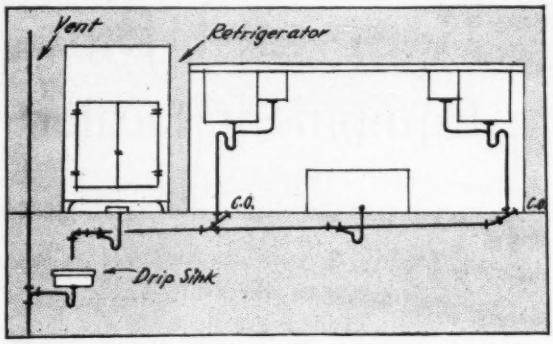


Fig. 7—In this case the bar connections and refrigerator are trapped separately

use of indirect bar connections that may be surprising to many of our readers. We refer to the danger of by-passes. Time and again we have seen or heard of instances where the trap on an indirect bar connection has been vented. This is absolutely wrong, and comes from ignorance. When a trap on any indirect connec-

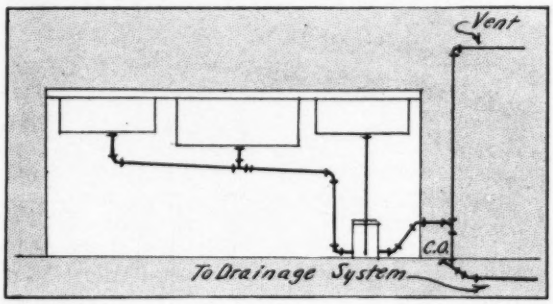
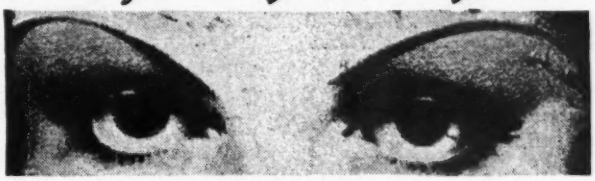


Fig. 8—The bar wastes here are connected directly to the drainage system

tion is vented, a by-pass is created with the drainage system. In the case of Fig. 3 or Fig. 4, for instance, if the trap were to be vented, a path would be formed through which sewer air and gases might travel and discharge through the open end of the indirect waste line. These by-passes are created not only in bar connections but wherever indirect connections are vented.

When a by-pass occurs, it results in the sewer air or gases flowing around the trap seal, which is in the line for the express purpose of preventing such gases from escaping into the room or compartment drained. The reason an indirect connection forms a by-pass when it is vented is that the drainage connection is broken because it discharges through an open connection into an open fixture. Since the vent system, of course, is connected to the sewer, the sewer air passes through the venting and out into the room through the open end at the fixture.

Before your eyes



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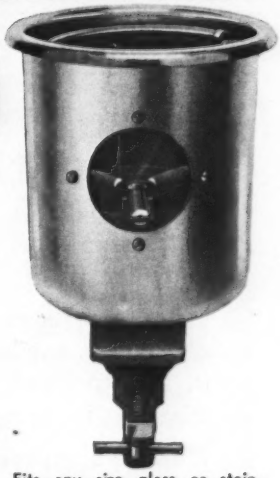
GLASS WASHER



Rinses each glass before serving—so the customer can see it Rinsed!

NO TWO GLASSES WASHED IN THE SAME WATER

Isn't it natural, in your own home where you know the glasses are clean, you ALWAYS RINSE THE GLASS BEFORE USING!

Rinsing glasses in the regular under bar rinse tank leaves a doubt with the beer drinker as to how many other drinkers' glasses were rinsed in the same water.

SLUSH BUCKETS ARE A THING OF THE PAST.

Fits any size glass or stein. INSTANTLY ATTACHABLE TO ANY BAR. NO PLUMBING NECESSARY.

LIST PRICE COMPLETE

$19.50

WITH ALL CONNECTIONS

All recognized beer serving authorities agree that to serve a proper glass of beer, the glasses must be rinsed immediately before serving.

GOES A LONG WAY TOWARDS GETTING NEW AND KEEPING OLD CUSTOMERS

AMERICAN COOLER CO.
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CURTIS
Beer Equipment

Outstanding
QUALITY
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CURTIS Beer Pumps

Compact (vertical or horizontal tanks). Precision made. Reflect our 40 years experience in building air compressors. Air strainer on intake, quiet, rubber mounted, V-belt drive, wick-oiling. Uses Po-Ri-Co for lubrication, won't contaminate beer, cost of pumping much lower than with gas. Adaptable to stationary or portable bars—1/6 or ¼ H. P. sizes. Attractively priced. Details on request.

Refrigerating Units

Design and precision tooling combine to make these units extraordinary from the standpoint of efficiency; and amply able to withstand the exacting requirements of long continued intermittent service. Buyers who seek good equipment will be interested in these units. Details on request.

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PNEUMATIC MACHINERY CO.
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You, the Dealer in beer dispensing equipment, are the last, and in some ways the most important, link in the chain of distribution.

You are required to know all about dispensing equipment, how to install it, how to service it, how to instruct others in its use.

There's repeat business if you are prepared at all times to do a good job as a dealer—and you can be so prepared if you are a regular reader of

BEER *and* BAR EQUIPMENT SECTION

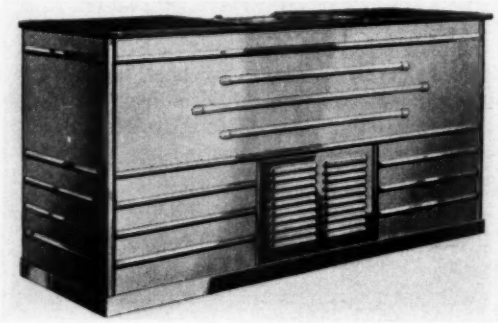
which carries full information on selling, installing and servicing beer dispensing equipment. It appears in every issue of

DOMESTIC ENGINEERING

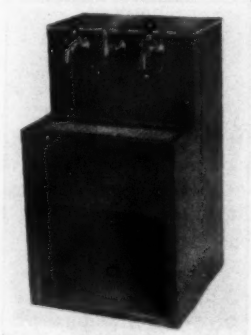
Products for the Beer and Bar Equipment Dealer

A Bar of Stainless Alloy

Even the service bar does not escape the influence of design nor the influence of the newer metals. The bar shown is of stainless alloy with the exception of the top slab. Fabricated by Russ Soda Fountain Co.,



Cleveland, with two-tone counter—mirror and Tampico finish. The metal is being used for counters, back bars and for exterior decoration. The metal is the product of Republic Steel Corporation, Central Alloy District, Massillon, Ohio.



All Metal Beer Dispenser

Made to fit under standard type of bar, with particular attention paid to use in smaller establishments where

Readers will find in this section information and news regarding products for use in making their beer dispensing sales and installations

there is little available space. Is 24 in. across and 22 in. deep. Insulated with 1 and 1½-in. granulated cork throughout. Top and drain boards, German nickel steel. Finished in brown crackle. Weight about 125 lb. Has two 40 ft. coils ⅜ in. block tin pipe with galvanized shield to protect the coils. Two beer faucets chrome plated. Product of Steelcraft, Inc., Michigan City, Ind.

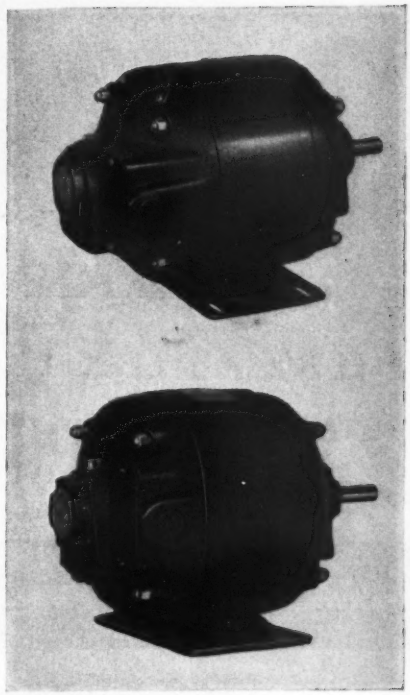
For Filtering Draft Beer

From all sides come the products of manufacturers intent upon giving the customer his glass or stein of beer with all its distinctive sparkle and flavor. The

manufacturer of the filter which we show says that the beer enters the filtering cartridge from outside, passes through fine spaces or slots between the discs, and goes up through the interior of the discs to the outlet pipe. Solids larger than thickness of spacers are held back by disc edges. Cartridges cleaned by turning handle which scrapes discs, dropping foreign matter to sump chamber at bottom. Head is nickel silver, discs and scraper blades bronze, sump is pyrex glass. Made by The Famill Corp., 303 Fourth Ave., New York City.

Beer Pressure Gauge

To the confirmed beer drinker, the "collar" is a matter of first importance. The gauge shown is manufactured for use with beer pumps. Also supplied for use on carbon dioxide regulators; in some instances are mounted directly on the beer dispenser, when they are



Which motor for your automatic beer pumps?

For high torque, select the Type RSA, repulsion-start induction motor.

For moderate torque, select the Type KH resistance split-phase motor.

Both of these motors have features which will reduce your service costs and simplify installation:

1. **Built-in terminal box — no leads to splice or solder**
2. **Drip-proof end flanges keep dripping liquids out of motor — lower maintenance expense**
3. **Large bearing-oil capacity — oiling required only once a year**
4. **Rotors are cushioned to prevent objectionable noise from end-bumping caused by reciprocating loads**

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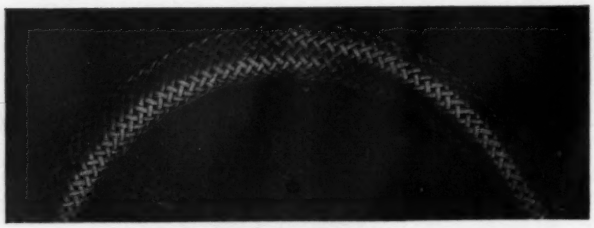
070-6

GENERAL ELECTRIC



AMERICAN

ALL METAL FLEXIBLE BEER HOSE

"FLEX-PIPE"

EVERLASTING

No Kinking – No Deterioration – No Swelling – No Leaking

and good tasting beer

FLEX-PIPE IS A PERMANENT AND SANITARY ALL METAL FLEXIBLE BEER HOSE WHICH PERMITS THE SAFE AND EASY HANDLING OF THE BEER AT THE DRAUGHT TUBES

Each length complete with attached standard couplings for immediate and easy hook up.

All Lengths from 3 ft. up

List Price $1.75 Per Foot

No man interested in the safe delivery of beer can afford to neglect the protection "Flex-Pipe" gives the beverage.

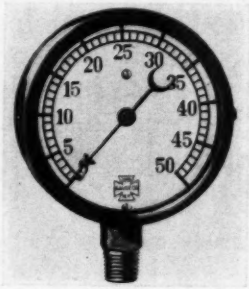
Economy demands the use of "Flex-Pipe" to eliminate continual replacement costs.

RECOGNIZED AND PROVED FOR SAFETY AND SANITATION

AMERICAN COOLER CO.

37 WEST 19TH STREET NEW YORK CITY

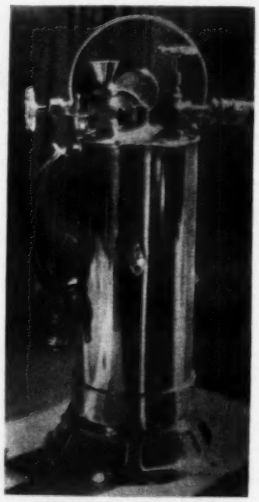
supplied with top flange. Have 2½ in. dial with readings for 50-lb. pressure. Gauges, maker says, are fur-



nished with independent, non-corrosive movements and thoroughly seasoned spring. Furnished with standard connections. Made by United States Gauge Co., 44 Beaver St., New York.

Steam Coil Cleaner

The coil cleaner shown operates on 110 or 120 volt, alternating or direct current. Three quarts of water are placed in the steamer and the apparatus is plugged into an electric light socket. 20 lbs. of steam are raised

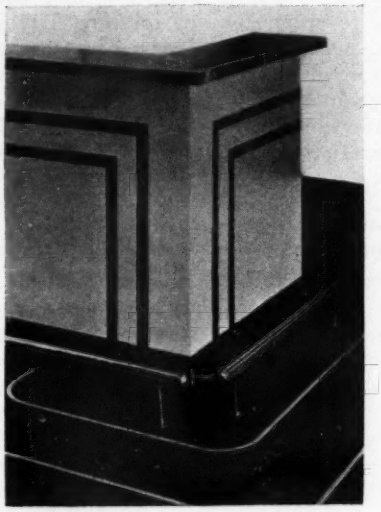


when it is turned into the coils. The apparatus is nickel plated, weight 10 lbs., and the maker suggests its use as a back bar fixture "to serve as proof that you keep your beer coils clean." Is provided with safety valve which blows off at 20 lbs. pressure. Frank Holden, 1819 Hughitt Ave., Superior, Wis., is the maker.

From Marble To Wood Panel

Time was when bars, like other furniture, were content to be of wood. But things have changed with the

times and now it is smart for the bar to present a face that has been treated with a wall covering. Thus it may look like wood, marble or any other fine natural material, because such wall covering is available in a number



of finishes and patterns. For the eating and drinking place, the manufacturers say, it offers the very great advantage of being easily cleaned. It also serves to insulate against sound. And it may be used to create any atmosphere from the classical background of marble to the wood panelling of our early American period. The covering is made by Congoleum-Nairn, Inc., Kearny, N. J.

Pump Overload Protection

No proprietor of a tavern wants to have to hang up an "out of service" sign on any one of his dispensing

stations—but it may happen right in the midst of his busiest and most profitable time unless he is protected against it. The product shown is a new pressure regulator switch with motor overload protection for use on

WE MANUFACTURE A COMPLETE LINE OF BREWERY *and* BEER DISPENSING EQUIPMENT

Every piece of brass goods in our line is made from only the first grade of material by skilled workmen with years of experience in the brass goods line and then checked and double checked to be absolutely certain that each and every piece of brass goods carrying our name will never be the cause of a call-back for service.

For the Brewery

Beer hose sight feed fittings
Round way stop cocks
Government lock cocks
Hose couplings, nipples, reducers and caps
Test cocks
Brass pipe plugs
Sight feed Y fittings
Cast brass return bends
Brass pipe return bends
Combination outlet ell and racking cock
Combination outlet ell and lock cock
Spring racking valve
Spring valve opener

For the Dispenser

Beer and water faucets
Straight and bent tapping rods
One, two and three way distributors
Mixing switches
Distributing Y fittings
Hose nipples and unions
Air cocks
Ice box couplings
Outlet plugs
Picnic pumps
Keg top cooler pumps
Brass bar rails
Overflows and sockets

Our New Catalog Is Now Ready for Distribution

RUNDLE-SPENCE MFG. CO.
445 NORTH 4th STREET MILWAUKEE, WIS.
Sixty Years of Brass Manufacturing Experience

★ Here *Is* Something *NEW*

SELL the Master Liquid Meter to the beer dispenser who is dissatisfied with his beer dispensing equipment and you have immediately landed a regular customer—because it works.

By that we mean it eliminates all waste of beer . . . no matter what size container is used, the correct amount of beer is drawn . . . makes possible a check on beer in the barrel . . . it actually checks the number of gallons drawn against the amount of money taken in.

That's why the Master Liquid Meter is so easy to sell. It's something new and it's interesting beer dispensers everywhere.

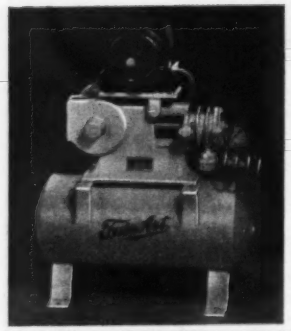
Write today for full information. Dealers everywhere are doing it.

LIQUID METER & REGISTER CO.
844 W. Jackson Blvd., Chicago, Ill.

PATENTED

★ *The* MASTER LIQUID METER

GUARANTEE
Fits all standard equipment. No necessity of making any change in coils, cooler or novelty box. Simply disconnect old faucet and connect new one. Two minutes' work



.No Oil
.No Oil Fumes
.Just Fresh Beer

The FAIR-ART is constructed so that oil or oil fumes can not get even remotely close to the beer. Air compressor cylinder and crank case housing are separated, eliminating need for lubrication.

•

Profitable territories are still available. Write at once.

The **FAIR-ART**

Shipped completely assembled. Two sizes: No. 800—10 tap capacity. No. T-800—20 tap capacity.

FAIRBANKS ENGINEERING CO.
WORCESTER, MASSACHUSETTS

Beer Dispensing Equipment

Bar Faucets, Tapping Rods, Beer Dispensing Equipment and Fittings; Coils, Air and Gas Regulators and pumps,

for

26 Years!

ILLINOIS BRASS MFG. CO.
224 NORTH ADA STREET CHICAGO, ILL.

Positively Pumps No Oil!

Dayton's **"WHITE CAP"**
Automatic, Oil-less
BEER PUMP

EXCLUSIVELY FOR BEER!

Ideal for dispensing draught beer in large volume—because it assures a good supply of clean, dry compressed air at all times. No pistons or rings—prevents pumping of any oil whatsoever into air line. ¾ HP repulsion-induction motor—10 gal. tank—cuts out at 90 lbs. pressure and in at 20 lbs.—quiet operation—V-belt driven. Size 24"x25"x 12". Weight—80 lbs. net. Ask about Model Y-100—Also Air Compressors from 1 to 50 cfm.

The DAYTON AIR COMPRESSOR CO.
"49 Years of Specializing"
425 Valley St., Dayton, Ohio

Good Beer is the result of successful co-operation between the brewer, the maker of dispensing equipment and the dealer who installs it.

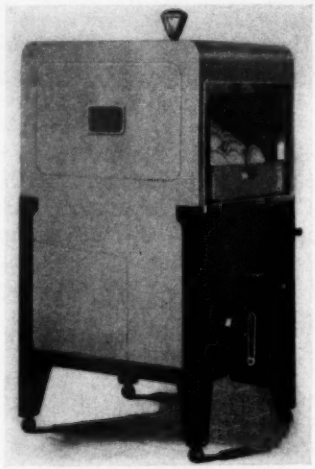
As a dealer you'll do your part far more profitably to yourself if you follow

BEER *and* BAR EQUIPMENT

motor driven beer pumps. It is rated for ¾ h.p. on alternating current and ½ h.p. on direct current. Manufacturer says that the contact mechanism will handle safely six times the full load motor current, or open the stalled motor circuit. Device is furnished in single and double pole, with or without conduit box. Switch adjustable to operate on any pressure sixty-five pound maximum and provides differential pressure adjustment setting of from twelve pounds to twenty-eight pounds. Mechanism mounted in neat black bakelite case with sealed cover to keep out moisture. Internal parts of rustless steel or cadmium plated. Maker: Cutler-Hammer, 12th St. & St. Paul Ave., Milwaukee, Wis.

Then Come the Dishes

The better the patronage, the more dishes there are to wash—and the more time help must spend washing dishes, the more it costs to serve the public. Which puts it up to the designer of equipment to furnish a



dishwashing device. The one shown, by means of automatic controls actuated by the basket as it passes through the machine, the washing water is turned off while the rinsing water is turned on. When there is need for greater capacity, the model shown is set up in multiples of two and three. When so used, machines have an 11-in. air space between tanks for the purpose of controlling the temperature of the water, and are connected by a bridge upon which can be mounted a rack carrier system for automatic feed. Height over all, 56 in. 32 in. long, 27 in. wide, working level variable from 34 in. to 35 in. above floor. Capacity, average 5,500 pieces per hour. Made by Kraeft Dish Washer Co., Erie, Pa.

One of the addresses delivered at the United States Brewers' Convention recently held at Atlantic City, N. J., contained the statement that the quality of beer served depends almost entirely upon the dispensing equipment, and unless the dealer is in a position to give the necessary information and advice to the dispenser, he will not be able to obtain satisfactory results. Beer is a very difficult beverage to manufacture and handle and is very perishable.

New Trade Literature

Folder Describes Radiator Traps

Sarco Company, Inc., of New York City, has just issued a folder which describes and illustrates this company's line of radiator traps, air eliminators, float and thermostatic traps and strainers. The folder also stresses the point that it is possible to save money on fuel bills by modernizing heating systems with this concern's radiator trap replacement units.

Elaborate Circular About Tank Balls

Woodward-Wanger Co. of Philadelphia, Pa., has issued an exceedingly elaborate circular about its cushioned mushroom tank balls, in which the points are stressed that the use of these tank balls stop water waste and noise. Attached to the circular is a miniature folder in which C. W. Wanger tells what happens "when the journeyman turns salesman."

Booklet Features Malleable and Brass Unions

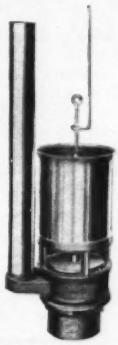
A new booklet, featuring a husky union made in air furnace malleable as well as in brass, has been issued by the Thomas Devlin Manufacturing Co., Inc., Burlington, N. J., makers of fittings and nipples. This booklet gives a complete description of this union. It is well-illustrated and is arranged so that the distributor can use it with his own imprint. This enables him to use this booklet as a piece of advertising for his own business as a sales help.

Bridgeport Brass Company's New Mannual

Bridgeport Brass Company of Bridgeport, Conn., has issued a new catalog under the title of "Bridgeport Brass Manual," consisting of 52 pages, 8½x11 in. in size, bound in an attractive black and golden cover, and containing detailed information about the company's brass sheets and rolls, brass rods and wire, nickel silver and phosphor bronze, condenser tubes, seamless tubing, pipe and water tubes, welding rods and copper products. This catalog also contains a large amount of general information about these products with many tables of weights and measures. Included in the section set aside for general information are excerpts from Rules and Regulations Governing the Copper and Brass Mill Products Industry as well as excerpts from the Code of Fair Competition for the Copper and Brass Mill Products Industry, which became effective November 13, 1933.

De Luxe Catalog of Modern Plumbing Fixtures

Washington-Eljer Co. of Los Angeles, Calif., has issued a de luxe catalog of its line of modern plumbing fixtures, consisting of 32 pages, 8½x11 inches in size, and containing two very interesting treatises on the manufacture of vitreous china and cast iron porcelain enameled plumbing fixtures. These treatises cover the entire progress from the raw product up to the finished article. In conjunction with these treatises, various bathroom arrangements are shown as suggestions and helps to the home owner, among them a complete color range, including white, ivory, yellow, brown, green (two colors), sierra, blue (three colors), red and black. The catalog illustrates and describes the company's line of fixtures, including bathtubs, lavatories, closets, shower receptors, foot baths, sitz baths, drainboard sinks, kitchen sinks, laundry trays and service sinks, drinking fountains and wash sinks, urinals, bronze-chromium plated bathroom accessories, and vitreous china "build-in" bathroom accessories. Special attention is directed to the company's controlled-flush closet, which is recommended for public buildings and any place where the overflowing of a bowl would be objectionable.



CURTIN FLUSH VALVE

Closes silently and gives automatic refill to closet.

No Refill tube needed from ball-cock.

Takes all the water out of the tank.

Will flush heaviest closet with small six gallon tank.

A. F. CURTIN VALVE CO.
MEDFORD, MASS.

"WE COMPETE IN QUALITY ONLY"

BARRETT
PLUMBER'S *Rough* BRASS *Goods*

The Standard — *Compression Stops* / *Compression Stops and Wastes* / *Ground Key Line* / *Waterworks Brass Goods* — *of Comparison*

THE CLEVELAND BRASS MANUFACTURING COMPANY
4606-4700 HAMILTON AVENUE CLEVELAND, OHIO

THE "MODERN" RANGE BOILER

Pat. No. 1853949

30, 40 and 50 Gallons
200, 250 and 300 lb. Test

In the above capacities the top and body of the "Modern" Boiler is formed from a single extra-heavy Copper Shell and drawn cold-seamless to the bottom, thus eliminating the top joint and the side seam and leaving only a bottom joint. The bottom head is hydraulically pressed on the shell and riveted securely with Copper Rivets closely spaced. Over the rivets a seamless copper band is spun and sweated, reinforcing the joint and making a solid construction which is impossible to come apart under any circumstance. Every boiler is reinforced internally and guaranteed against collapse. The interior is thoroughly tinned.

Sold Through Wholesalers Only

HAYES MFG. CO., Paterson, N. J.
Established 1870

NO-SOL COPPER FLOATS

QUALITY MERCHANDISE *does most to stimulate* CONSUMER CONFIDENCE

Incorporated 1907
THE AYLING & REICHERT CO.
3047 NORTH ERIE STREET TOLEDO, OHIO

KEEP THEM ON HAND AT ALL TIMES

BY keeping "ACME" Beveled Bibb Washers on hand at all times you are prepared to meet every bibb washer requirement. The "ACME" Handipak (illustrated) consists of 100 washers, in seven assorted sizes. Your Jobber carries "ACME" Bibb Washers.

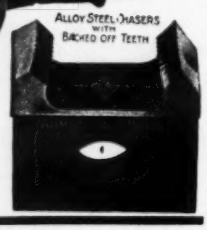
THE NAME "ACME" IS STAMPED ON EVERY WASHER

LAVELLE RUBBER CO., 320 W. Illinois St., Chicago, Ill.

Look for the *Arm-and-Hammer*

ARMSTRONG BROS.

Adjustable
DIES
and . . .
STOCKS



Cut faster, easier; cut *smooth threads.* Dies are Chrome-Vanadium Steel, have backed-off teeth, correct Cutting Angle, correct Throat Angle and Ample Chip Clearance.
Free from ridges and corners. Stocks fit comfortably in hand, are balanced, are accurately machined inside. Take all dies.
Write for Catalog of Better Pipe Tools

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 N. Francisco Ave., CHICAGO, U. S. A.

REDUCED RATES

NEARLY half the 1600 rooms at the William Penn Hotel have now been reduced to $3.00 and $3.50. A NEW DEAL for everybody! The same excellent service, the same luxurious appointments at Pittsburgh's finest hotel. All rooms with bath . . .

HOTEL
WILLIAM PENN
PITTSBURGH

Also the FORT PITT HOTEL—good rooms from $1.50 with bath $2.00

New Contractors and Incorporations

San Francisco, Calif.—Turner & Co. have opened a plumbing and heating business at 1702 Washington Street.

Owensboro, Ky.—The Home Plumbing & Heating Company has been incorporated by J. S. Shelton, E. B. Peacock and others.

Portland, Ore.—The Anderson Engineering Co. has engaged in the heating business at 3043 N. E. 57th Street, under the management of Arthur A. Anderson.

Los Angeles, Calif.—Edward Warnes has started in business at 1152 North La Brea Avenue under the name of the Alert Plumbing Service.

Brooklyn, N. Y.—M. Silverstein and Julius T. Parker have opened a plumbing and heating business at 980 Rutland Road under the name of Curley Plumbing and Heating, Inc.

Waterbury, Conn.—The Barlow Heating & Plumbing Company has been incorporated with a capital of $50,000. The incorporators are: Oliver R. Barlow, Wilbur C. Winship and Norman C. Armstrong, all of 61 Field Street, in this city.

Los Angeles, Calif.—The Beverly & Hollywood Plumbing Company has started in business at 1315 North La Brea Avenue and at 11919 Wilshire Boulevard, West, under the management of Harry James Sketchley.

Lomita, Calif.—Brown & Turcotte is the name under which Valentine Brown and E. J. Turcotte have engaged in the plumbing and heating business at 1823 Wilmington Road.

Boston, Mass.—Bogan Heating Corporation has been incorporated with a capital of $9,000. The officers are: President, Nathan Bogan; vice president, Robert Shapiro, and treasurer, Leo Dane, 4 Dwight Street, Brookline.

Lexington, Mass.—The Lexington Plumbing & Heating Company has been incorporated with a capital of $1,200. The officers of the new company are: President, Lester L. Andrews; treasurer, Hollis B. MacDougall, 35 Park Street, Lexington, and Orra A. Custance.

San Francisco, Calif.—W. H. Chapman has moved his plumbing and heating business from 1308 Pacific Street to 1324 Jackson Street.

Clinton, Iowa.—George Harderson has purchased the plumbing and heating business of the E. N. Woodbury Company at 139 Fifth Avenue, South, and will continue the business at that location.

Portland, Ore.—A. Pope has sold his interest in the American Plumbing and Heating Company, and J. J. McCann will continue the business under the same name at 183 Twenty-third Street, N.

Remodeling—

(Continued from Page 28)

leaves a net income to lessor (owner) of $5,010.00 per year, or about 19½ percent, a gain, on the investment of $25,500.00.

This building was built when land and building costs both were very low compared to recent costs. Presumably the building earned a fair income on the investment for many years, then went through a period when rentals reached huge figures. Doubtless this, and many other properties, have earned a total equal to interest and the principal (original investment) whether or not the properties are now clear. A relatively small new investment now assures an income from the property rather than an operating deficit.

CLASSIFIED ADVERTISING

8 cents for each word including heading and address. Count seven words for keyed address. Minimum $2.00 for each insertion.

One inch $4.00. Cash must accompany order. Copy should reach us eight days in advance of publication date.

Situations Open

SALESMEN: PERSONALLY ACquainted and having contacts with plumbing and heating contractors. Territories now being assigned on country's fastest-selling, complete line of quality pipe fittings. Unusual price set-up, backed by liberal commission arrangement, identifies this as one of the outstanding sales opportunities of 1934. Address Key 942, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

SALESMAN WITH CAR DESIRED BY established manufacturer of heating boilers, radiators, furnaces, tank heaters and specialties, for northern Pennsylvania north of Philadelphia, New Jersey south of Perth Amboy. Commission basis. Desire men with Jobber clientele. State references, experience. Address Key 943, "Domestic Enginering," 1900 Prairie Ave., Chicago, Ill.

WANTED: SPECIALTY SALESMEN for new pinless ballcock; sells on sight; large profits. This is not a job. Address Key 947, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

Position Wanted

EXECUTIVE DESIRES POSITION. Twenty years' experience including stockroom, billing, traveling salesman, credits, sales manager, general manager, plumbing, heating, mill supplies. Best reference. Compensation open. Address Key 939, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

Lines to Handle

WANTED: MANUFACTURERS' REPresentatives for exceptional line of brass specialties, including entirely new ballcock. Commission basis. Address Key 944, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

WANTED: SALES MANAGERS AND representatives of plumbing and heating materials for exclusive territories to sell complete line of Pressure-Temperature and Vacuum Relief Valves with following among Jobbers, Architects and Engineers. Address Key 945, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

SALESMEN — DISTRIBUTORS — JOBbers: What do you think of a line that is so good that 90% of our business (from largest firms) comes to us by mail. Some customers have ordered every month for over ten years. Now we are placing experienced salesmen, acquainted with trade, in all territories to sell our "Sauer-Eisen" Pipe Joint Compound No. 52. Plastic Iron No. 35. Plastic Porcelain No. 30. Insa-Lute Cement No. 1. Liquid Porcelain No. 11. Acidproof Cement No. 10 and other technical and mechanics' cements. Write to us today and start making money with these sure repeats which the buyers are looking for. TECHNICAL PRODUCTS CO., Pittsburgh (15) Pa.

For Sale

FOR SALE: HARDWARE, PLUMBING and heating; old established business for more than forty years. Located in northern Illinois in a growing community. Store building is brick, equipped with electric elevator. Owner wishes to retire. Will sell either line separate with or without building. Address Key 948, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

FOR SALE: PLUMBING AND HEATing business with the following agencies: Maytag Washer, Electrolux Gas Refrigerator, Magic Chef Gas Range. Good business, Virginia. Address Key 941, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

Representatives Wanted

SALES REPRESENTATIVES wanted: Men now contacting the plumbing and heating trade to handle complete line of range oil burners and several models of domestic hot water units. Other items in season. Attractive proposition. Reputable 20 year old organization. Fine profit possibilities and exclusive territories. Describe territories covered, type of trade, and lines carried. Monitor Utilities Corp., 43-00 Crescent St., Long Island City, N. Y.

MANUFACTURERS' AGENTS: INcrease your profits by adding to your line pipe coverings and other insulations made by Chicago manufacturer of national repute. Products sell easily; wide need and demand. Mention lines now handled, territory covered. Address Key 949, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

REPRESENTATIVES WANTED: MEN contacting architects and engineers to handle a line of drainage specialties. Give full particulars regarding qualifications and lines handled. Address Key 946, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

Miscellaneous

DIRECT FACTORY REPRESENTAtion by a manufacturer of Plumbers' Brass Goods. Commission basis. State lines represented. Give qualifications. Address Key 935 "Domestic Engineering," 1900 Prairie Ave., Chicago.

NRA CODES REQUIRE ACCURATE records of costs. We have printed forms, easy to use and economical to buy. Samples mailed same day we receive request. L. Fink & Sons, Printing for Plumbers, School Building, Laurel Springs, New Jersey.

MANUFACTURERS OF PLUMBERS brass goods is interested in securing good inventions, royalty or buy outright. Address Key 922, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

PLUMBERS' BIN LABELS. SEND FOR samples and free booklet: How to Label Plumbers' Stock Bins. HADDON BIN LABEL CO., Haddon Heights, N. J.

Have you a personnel problem — Are you seeking a new connection?

No matter what your personnel problem, DOMESTIC ENGINEERING's classified advertising pages present the best solution because they put you in touch with the best men in the industry. Men who are ambitious, who are experienced in the plumbing and heating field and who are always on the alert for an opportunity to make a good connection.

If it's a salesman, contact man for jobbers or contractors, architects, etc., DOMESTIC ENGINEERING is reaching the cream of these men.

And if you're seeking a new connection, if you are looking for a permanent connection with a good house, DOMESTIC ENGINEERING classified advertising will tell your story to your best prospects.

If you have anything to sell, if you're looking for miscellaneous "buys" in plumbing necessities, you'll find the classified page the best market place.

Tell us your problem — let DOMESTIC ENGINEERING classified page solve it.

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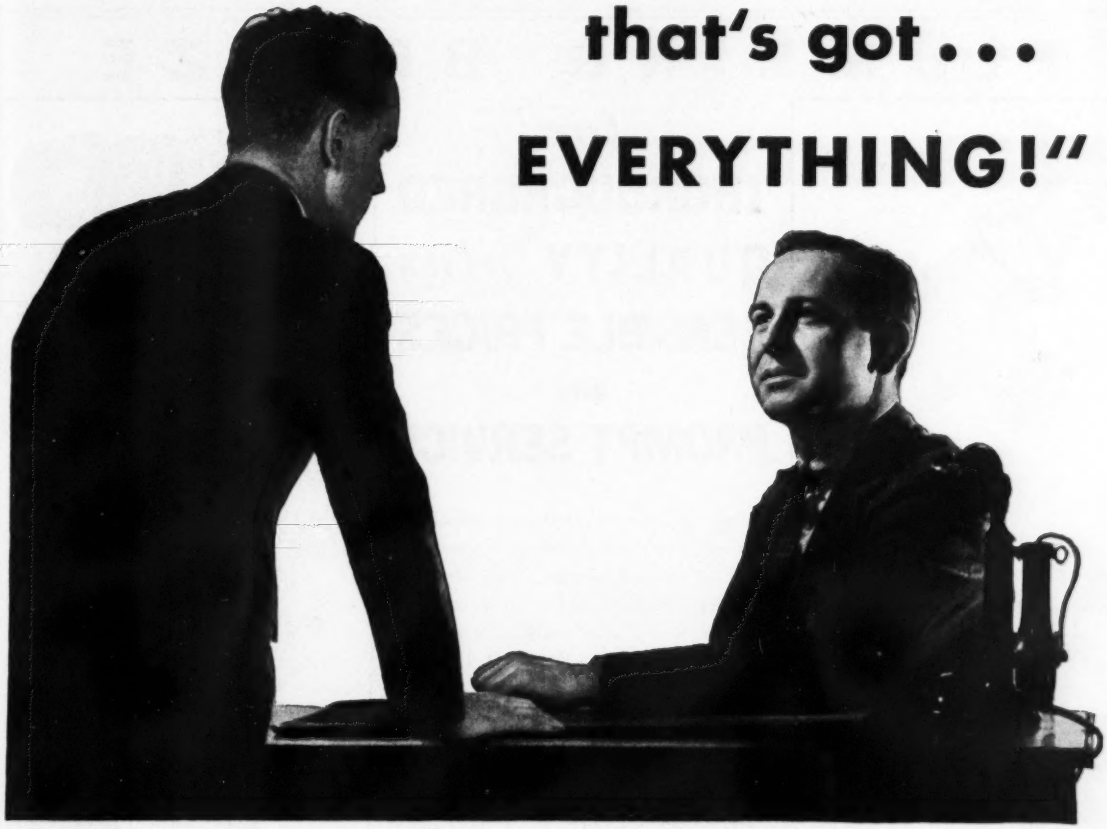

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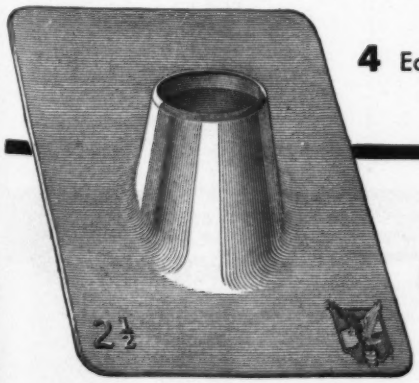

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Plate E-3614
Wheel Key Angle
Lawn Faucet

Plate E-3511
Compression Stop
and Drain

Plate E-3554
Angle Lavatory
Stop

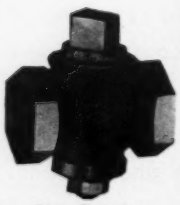

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Plate E-3673—Bath Faucet

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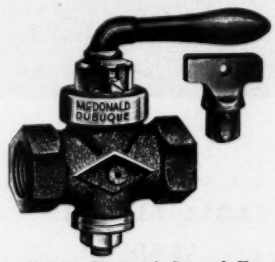

Plate E-2832—Diamond Ground Key Stop
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Plate E-4711—Inverted Key Curb Stop

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